S. HRG. 106–1106

REAUTHORIZATION OF THE MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

FIELD HEARING

BEFORE THE

SUBCOMMITTEE ON OCEANS AND FISHERIES

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED SIXTH CONGRESS

SECOND SESSION

APRIL 10, 2000

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REAUTHORIZATION OF THE MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

MONDAY, APRIL 10, 2000

U.S. SENATE,
SUBCOMMITTEE ON OCEANS AND FISHERIES,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Boston, MA.

The Subcommittee met, pursuant to notice, at 10 a.m. at Curry Student Center, Northeastern University, Boston, Massachusetts, Hon. Olympia Snowe, Chairman of the Subcommittee, presiding.

Staff members assigned to this hearing: Sloan Rappoport, Republican Counsel; Stephanie Bailenson, Republican Professional Staff; and Margaret Spring, Democratic Senior Counsel.

OPENING STATEMENT OF HON. OLYMPIA J. SNOWE, U.S. SENATOR FROM MAINE

Senator SNOWE. Thank you. Thank you very much, President Freeland, for all the courtesies extended by you, your staff and officials here at Northeastern University. We certainly appreciate it on behalf of the Subcommittee. I also want you to know my niece graduated from Northeastern four years ago and had a magnificent, positive experience here. Thank you again on behalf of the Subcommittee for hosting this event.

The hearing will now come to order. Good morning. I want to begin by welcoming all of you this morning and thanking Senator Kerry, in particular, for inviting the Subcommittee to Boston to discuss the future of New England and our nation's fisheries.

Senator Kerry has been a major voice on fisheries issues during his distinguished career throughout the U.S. Senate. During the last reauthorization of the Magnuson-Stevens Act, Senator Kerry wrote many of the major provisions which were ultimately enacted in the Sustainable Fisheries Act. I'm looking forward to working with Senator Kerry as we move forward in a bipartisan manner to reintroduce this legislation. Hopefully we will reauthorize it and create consensus to support the future of our nation's fisheries.

It's also a great honor to have Senator Stevens with us. This is the third Oceans and Fisheries field hearing this year and he has been to each one. It's no exaggeration to say that there's no member of the House or Senate who has more of an impact on fisheries policy in the United States than Senator Stevens. He quite literally wrote the book. He was the driving force behind the original enactment of this legislation, and he served as the first chair of this

Subcommittee. We're very privileged to have him here today and for the enormous contributions that he has made over the years.

Finally, let me welcome all of our witnesses who agreed to join us this morning. We appreciate your willingness to share your insights with the Subcommittee. This is the sixth and final hearing to be held by the Subcommittee as part of an exhaustive review of the Magnuson-Stevens Act and its implementation by the administration.

The enactment of the Fishery Conservation and Management Act of 1976 began a new approach to Federal fisheries management. As you all know, the Act is administered by the National Marine Fisheries Service and the eight regional management Councils. Their actions establish the rules under which the fishing industry operates. They determine the harvest quota, season lengths, gear restrictions, and license limitations—decisions which have serious implications for those of you who fish and work in New England. That is why difficult management decisions cannot be made in a vacuum. You're the ones whose livelihoods are at stake. Your voices must be heard in the decision-making process. As such it is critical that all sectors of the fishing community receive fair and balanced representation so that they will have a strong voice in management.

Throughout the process we have sought answers to some very critical questions. What are the results of our Federal fisheries legislation? What's working? What needs improvement? What do you, as people on the front lines, believe is important for the future? Already we have heard from fishermen in my own state of Maine, Louisiana, Alaska, and Washington to discuss proposed changes to the Act.

Clearly, fishing is critical to many states and the Nation as a whole. In 1998 commercial landings by U.S. fishermen were over 9.2 billion pounds of fish and shellfish worth $3.1 billion. The recreational fishing catch was 195 million pounds. As you well know, fishing in New England is more than a job; it's a way of life. It's an essential component of who we are as well as our economy.

In 1998, New England fishermen landed over 595 million pounds worth of fish, worth over $535 million. Maine and Massachusetts split the top honors, with Maine leading the value of the catch at $216 million and the Bay State leading in volume with 252 million pounds. New Bedford is at the top of the list in terms of the value of the catch, and last year's landings were worth over $93 million. Gloucester, which landed 107 million pounds, also provides a major source of revenues and jobs through the fishing industry.

While in many regions commercial and recreational fisheries are strong and robust, others have not fared as well. Such is the case with the New England groundfish. There's no question that when fish stocks have declined, communities in those regions feel the weight of the economic impact. Rebuilding groundfish stocks has consumed much of the New England Council's time over the past few years, and it will continue to present significant challenges in the future. Therefore, it is imperative that the socioeconomic impacts on fishing communities be given adequate consideration throughout the entire process. It is vital that management decisions, which have a direct effect on you, your families, and your

communities, are based on the best science—not just the best available science.

That is why I am working with Senator Kerry to establish cooperative research programs that will provide us with the additional tools necessary to improve fisheries management in New England. That, after all, is what the reauthorization process is all about. We have been examining ways to bring about healthy fisheries as well as healthy fishing communities. Some common themes have emerged at our hearings that need to be addressed if we are to achieve this goal.

First and foremost, as you all know, the moratorium on new individual transferable quotas, or ITQs, will expire in less than six months on October 1st. We need the New England perspective. We need to know whether or not to extend the moratorium, and whether or not ITQs can work.

At some of our other field hearings witnesses asked us to examine the use of co-ops and buy-backs as means to reduce capacity. We need to hear if these, or other alternatives, could work in New England.

Second, flexibility is a broader issue with major consequences. Clearly, those most affected by the law believe it is too rigid, that it's not properly implemented by NMFS, that there has not been adequate consideration of the socioeconomic impacts, and that—contrary to its mandate—the best science is not being used.

To help us assess how NMFS has handled some of these requirements, Senator Breaux and I asked the General Accounting Office to conduct an investigation. In fact, the report was released last week. I know many of you spoke with the GAO in New Bedford and Fairhaven this past September. This report will help clarify what changes, if any, are necessary to make sure that NMFS fulfills its mandates.

I'm convinced that if the law is not made more flexible the agency will continue to act to the detriment of fishing communities across the country. Hopefully I will be able to introduce a bill with Senator Kerry and Senator Stevens that will go a long way toward making your government work for you and with you, not against you.

Moreover, we must look at ways to improve the Council process. Those of you who have actively participated know that it requires a great deal of time and effort. I'd like to see if there's a way to reward that work with good results, not with delays and frustrations.

As we move forward in this process, we must make sure that sustainable fishing and good management become the norm and not the exception. Clearly, the reauthorization will have major implications for the future of marine fisheries in the United States. I view this as a unique opportunity to take what we've learned and craft a sensible and balanced approach that respects all sides. Many of you have urged us not to do another major overhaul of the Act at this time. You've pointed to significant changes that were made in 1996 and that NMFS and the Council are required to implement. It is with your suggestions that we will be able to decide what changes are necessary to make the Act work better for you.

I hope to have draft legislation by the end of this month and move forward to reauthorize this legislation in June. Hopefully we can work together in a bipartisan manner to incorporate all of your changes and suggestions and develop the best approach possible for the future of our nation's fisheries.

With that, let me recognize Senator Kerry for any opening statement he may want to make.

STATEMENT OF HON. JOHN F. KERRY,
U.S. SENATOR FROM MASSACHUSETTS

Senator KERRY. Senator Snowe, Madam Chairman, thank you very, very much for being here, for your words, but also more importantly for your sustained commitment to the issues that we face here, and I'm very, very appreciative for your taking the time to come here and give our folks in Massachusetts, indeed New England, an opportunity to be heard more thoroughly with respect to these issues. You've done a wonderful job of traveling around the country and listening. These are tough issues, we all know that; we've been dealing with them for a long time. I think these hearings are a critical part of the process of building consensus on what the large issues with the Act are. The hearings are time consuming, they're tough, and I know how difficult it is to be able to conduct them all. So we're very appreciative.

Senator Stevens, likewise, I echo what Senator Snowe said in her comments. I've been on this Committee now for 16 years, and it has been a privilege working with Senator Stevens every step of the way. He is by far one of the most knowledgeable and best advocates in the Congress for sustainable fisheries and for the marine environment, and it's no accident that the legislation we are discussing today is now known as the Magnuson-Stevens Act. We're honored that you're here, and we're appreciative for all you've done.

Also, I want to thank Penny Dalton who helped write a lot of this law when she was on the Committee and continues to exert leadership on these issues in her position as director of National Marine Fisheries Service. Admiral Naccara, thank you very much for being here to share your expertise and help us understand the resources and the commitments necessary for the Coast Guard to carry out its missions under the Sustainable Fisheries Act. To all of you who are here from the industry or from science or the public side of the policymaking, we really do welcome you. This is a great opportunity just to listen and have a dialogue with us and others interested in these issues, and not to just talk at each other. We really welcome that opportunity.

I'm very pleased that we're here at Northeastern. It is a terrific university, as everybody knows. It's an appropriate place for us to be talking about these kinds of issues because of Northeastern's commitment to sensible approaches to public policy issues, and its understanding of the problems of working people's needs as they adjust to the rapid changes that we face in our marketplace today. Nowhere do they do a better job of helping people do this than here at Northeastern. And I'm very grateful to President Freeland for his welcome, and to Tom Keedy, for helping to facilitate our being here today.

Let me just try to focus very quickly on a couple of things, building on what the Chairman has said. We in the United States harvested 3.1 billion dollars of fishing product in 1998, the last year we have the stats for. That's 9.2 billion pounds of seafood. By weight that ranked us as fifth largest fishing nation in the world, and I think third in fishery exports. Here in Massachusetts, as Senator Snowe said, we are combined with Maine and New Hampshire and Rhode Island and the New England states to be extraordinary providers of fish product, not just to our own country, but to the world. We brought in $204 million worth of product to Massachusetts in 1998. That is a 33 percent reduction from 1990 when it was a $300 million industry. And no one in this room would doubt the impact of the decline of the groundfish stocks and the regulations enacted to help rebuild those stocks. The impact these tough, but necessary, measures have had on our economy, on individual lives within our communities as a result is unquestionable.

We've tried to provide transitional assistance to people. I see a lot of faces around the audience—we have worked closely with you to try to mitigate the unfortunate impact of these realities. Our fisheries are beginning to recover, and this current progress shows we need to stay the course. Obviously part of the discussion today will be figuring out how we stay the course.

A little over 3 years ago, we enacted the Sustainable Fisheries Act that substantially amended the Magnuson-Stevens Act so that we would better conserve and manage these vital marine resources. That was the most important rewrite of the Federal fishing laws since the enactment of the Magnuson Fisheries Act in 1976 when we Americanized the fisheries within 200 miles of our shores. Senator Stevens and I were the original co-sponsors of those 1996 amendments, and we set out some very clear restraints on reducing bycatch, rebuilding depleted stocks, and designated and conserving essential fish habitat. We tried to put solid principles and conservation requirements into place, and needless to say, some people had to make some sacrifices in order to help increase the abundance of many of these species.

This time around, I don't think we have to do that kind of dramatic restructuring of the Sustainable Fisheries Act. Now, maybe some of you have a different notion about that. I think the key questions that we face are: Do we have the resources necessary and the tools necessary to be able to make the existing fisheries management structure work properly? Are we able to implement the changes made in 1996 as we envisioned, and to the degree that most people think are necessary to sustain fisheries? And do we have the necessary information, and are we using this information effectively to help us make sound management and conservation judgments?

Now, the recently released General Accounting Office report highlights a lot of these implementation issues. The bottom line is that it's difficult to implement the Act given the current level of information and the current level of funding. The GAO found that NMFS is using the best scientific information available to make fishery management decisions, but they also say we've got to work to increase the availability of that information, including collecting data with fishermen.

The New England delegation recognized that gap, and we worked together—and I might say Senator Snowe and Senator Stevens and the rest of the Committee, I've never seen this Committee become partisan. I've never seen us divide our issues Democrat/Republican. We have a terrific way of working together, and it's been very, very helpful in terms of our approach to these issues. It was working together that Senator Stevens was able to help Senator Snowe and I get $20 million in Federal funds to help establish the cooperative research program between scientists and fishermen. But everybody understands that's just a drop in the bucket. I think we definitely need a national observer program, electronic or real-time reporting, increased surveys, better understanding of habitat protection needs, more socioeconomic data, not to mention designing more effective ways to conserve and manage our stocks and ultimately our fishing communities. Modernizing the fishery management process is also long overdue. I think we can get there from here with a concerted effort.

Let me say finally that there's a certain irony in the fact that in New England some of the new management challenges actually come from the very thing that we hoped for—the rebuilding of the stocks. Now is the time to work together to plan for managing those stocks as they do rebound. The extraordinary scallop harvesting that we saw is a classic example of what can be achieved by restraint and by proper management. Rebuilding of the stocks really ought to be just a bell weather signal to all of us about the capacity of our fisheries to ultimately come back.

But there are still unanswered questions. How do we improve the quality and use of scientific and economic data in conservation and management decisions? Are we doing all we can to reduce bycatch? Again, have we done enough to identify and protect essential fish habitat? There, of course, the research process itself is critical. What can we do to improve our management options? Senator Snowe mentioned a moment ago the question of the individual fishing quotas. Well, we all know the current moratorium expires at the end of September. We haven't been able to consider even the transferable quotas and issues about cooperatives and community quota systems that were mentioned. I personally am very interested in those. I think that they may be some terrific tools, and it may be that under these scenarios we can find a way to satisfy some of the complaints of fishermen who say people don't use their expertise enough, people don't rely on the fishermen enough to not only provide data but also to use techniques built up over a long period of time to make responsible decisions.

So what we do with respect to that issue is going to be, I think, very important in the proper implementation of this Act ultimately. So whether you're a fisherman or a manager or a conservationist or a scientist or just an interested party, I think this hearing is vitally important to our ability to tweak the process to address pressing issues. And we're blessed that we happen to have Senator Stevens here, the Chairman of the Appropriations Committee, which has a great ability to have an impact on a lot of these issues. I hope I'm not putting too much weight on him by saying that. But in a sense maybe I do hope I am.

So Madam Chairwoman, thank you very, very much.

Senator SNOWE. Thank you. Thank you very much, Senator Kerry, for those comments.

Senator Stevens, do you care to make any comments?

Senator STEVENS. Thank you very much, Madam Chairwoman——

Senator SNOWE. We welcome you.

STATEMENT OF HON. TED STEVENS,
U.S. SENATOR FROM ALASKA

Senator STEVENS. —and Senator Kerry. It is nice to be back here again. I have fond memories of Boston and Cambridge, but beyond that I really have a great memory of the time we held hearings here—we have held them here several times over the years as you know, but when will we get a chance to go into that grand aquarium you have here. I wish we had time today to go back and see how you've maybe improved that. It's a wonderful asset to your community.

Senator KERRY. We were going to maybe be there, but the Big Dig is there, and so we——

Senator STEVENS. I figured you didn't want me to see that, John. That's why . . .

(Laughter.)

The proper management of fisheries and our resources was really the motivating factor of our becoming a state, and I have been involved in this general area now for a very long time. I think it's a very wise thing that we decided that the Magnuson Act, now renamed and carries my name too, that it should be renewed periodically so we can be forced to go around the country and get the attitude of the people affected by the kind of management that's going on.

I don't want to add too much to what's already been said. We've been in Anchorage and Seattle. You've been in New Orleans and Maine, and now we're here. I hope we can now get down to marking up this bill and getting an agreement so that we can take it to the floor.

Ms. Dalton, Penny, as we all know you, you're a good traveler too. You've been at all these hearings, and I congratulate you for that. I say that so I can say something nice about you before I say this: The one thing that's happened recently that has not been what I thought it should be—we all have supported the essential fish habitat concept, but when the agency designated the entire 200-mile zone as essential, I think it put an enormous burden on entities that are not associated with fish habitat to clear with National Marine Fisheries Service, and I hope we find some way to turn that off. We have half of the 200-mile zone of the United States off one state, my state. And when you look at the impact of that on our state, I think it's just overwhelming. So I do hope that we'll hear if there's any comments about that here today. But I'm really here to learn. One of the problems we have now on the west coast and up in the Baring Sea and the North Pacific is the problem of individual fisheries quotas. Our attitudes there are changing. There's no question about it. Many more people now are in favor of IFQs as one of the management tools to help us as we must reduce our gear as product is slowly but surely being re-

duced—I think from overpressure from marine mammals—but that will take awhile to prove. So while we wait for that proof, we must protect the species.

Senator Magnuson and I, when we first introduce this bill, agreed on one goal: This bill was not a bill to protect fishermen; it was not a bill to protect jurisdiction of states; it was to protect the reproductive capacity of our fisheries. And I think that should continue to be the goal as we go forward. It's nice to be with you.

Senator SNOWE. Thank you, Senator Stevens.

STATEMENT OF RICHARD FREELAND, PRESIDENT, NORTHEASTERN UNIVERSITY

Mr. FREELAND. My name is Richard Freeland. I am the president of Northeastern University, and it's my pleasure this morning to welcome you all to this hearing. I'd like particularly to welcome the three members of the U.S. Senate who honor us with their presence today; Senator Olympia Snowe, Subcommittee chair of the Subcommittee on Oceans and Fisheries; and in the center, our old friend Senator John Kerry, the Junior Senator from Massachusetts. It's always a pleasure to welcome Senator Kerry back to the Northeastern campus; and at the far end of the table, Senator Ted Stevens from Alaska.

I also want to welcome those who will testify here this morning: representatives of the fisheries industry, experts on this subject, and members of the general public.

This is an important topic to the region, to the nation. It's one that we here at Northeastern follow with great concern, and we're very happy to be able to provide this forum for these important issues to be heard. So with that, welcome once again to Northeastern, and Senator Snowe, welcome once again.

Senator SNOWE. We now begin with our first panel. Our first witness is Ms. Penny Dalton, the Assistant Administrator for the National Marine Fisheries Service. Penny, I do want to express my appreciation and gratitude to you for your testimony here today and at the five other field hearings held across the country.

Mr. Tom Hill, chairman of the New England Fishery Management Council, is our second witness. We know that your testimony will be very important to us here today because of your familiarity with New England issues.

Our final witness on the panel will be Rear Admiral George Naccara, Commander of the First Coast Guard District here in Boston. Congratulations to you, Admiral, for your recent selection for this very important post.

Accompanying Ms. Dalton is Ms. Kurkul, who is the Northeast Regional Administrator for NMFS.

We also have Dr. Mike Sissenwine, from the Northeast Fisheries Science Center.

Ms. Dalton, would you please begin. We'll include all the statements. We would please ask to you limit your testimony to five minutes. Thank you.

STATEMENT OF PENELOPE D. DALTON, ASSISTANT ADMINISTRATOR, AND PATRICIA KURKUL, NORTHEAST REGIONAL ADMINISTRATOR, NATIONAL MARINE FISHERIES SERVICE

Ms. DALTON. Good morning. Thank you for the opportunity to testify on the Magnuson-Stevens Act and on New England fishery issues. Just thank you also for the opportunity to have attended these hearings around the country. It's been a great learning experience for me. I'm Penny Dalton, Assistant Administrator for NOAA Fisheries. Accompanying me are Pat Kurkul, our Northeast Regional Administrator, and Dr. Mike Sissenwine who heads the Northeast Science Center.

My written statement includes a detailed discussion of our implementation of Magnuson-Stevens Act and suggestions for amendments to the Act. So in the interest of time, I'll limit my comments to a few key issues.

In 1998 New England fisheries harvested close to 600 million pounds producing almost $540 million in dock-side revenues. If rebuilt, these fisheries could sustain a billion dollar industry. However, rebuilding cannot be achieved without significant socio-economic costs. The past five years have been difficult for almost all sectors of the industry. But this investment is beginning to pay-off. And we're starting to see signs of recovery.

NOAA stock assessments indicate there is good news for many stocks and for a few species we actually have seen substantial improvement. For instance, the biomass of George's Bank haddock has increased fourfold since early 1993. And the 1998 year class is the largest in the past 20 years. One Cape Cod fisherman reported that the 1999 haddock harvest by the Cape Hook Fleet was the best in 30 years.

The situation also has improved for George's Bank cod where populations have increased 43 percent above record low 1995 levels. Yellowtail flounder is improving with growing numbers off George's Bank, southern New England and Cape Cod. In addition, witch flounder is well on its way to recovery. We've seen good recruitment and a doubling of the adult biomass since 1995.

Despite these positive signs, other fish stocks are still threatened by overfishing or in the early stages of recovery. The Gulf of Maine cod situation remains particularly troubling. Fishing pressure has been reduced, but mortality is still two to three times what it needs to be to promote rebuilding. For cod populations on both Gulf of Maine and George's Bank, few young fish are entering the fishery, and we have not had a good cod year class in many years.

Despite these concerns, we remain cautiously optimistic that we can reestablish the full potential of New England fisheries. The cultural and economic benefits that healthy fisheries can provide to coastal fishing communities are enormous. However, to realize this potential, we must stay the course. That is not to say that we cannot or will not take steps to improve our fishery management programs. Such steps are necessary to improve the scientific base for decisions, to minimize the impacts of our regulations on fishing communities and to ensure that no future generation of fishermen has to suffer through the protracted rebuilding effort that is ongoing today.

Toward that end, we are looking for more flexible ways to achieve our conservation objectives and improve our working relations with the fishing industry. Last year's experience in the scallop fishery illustrate several of the approaches we are pursuing, and that may be useful to think about in the reauthorization.

As you know, large areas on George's Bank were closed in the mid-90's to rebuild groundfish. These area closures allow productive scallop beds to rebuild in the absence of fishing. The wealth of scallops that now exist in the closed areas demonstrates the effectiveness of protected areas as a fishery management tool. NOAA Fisheries surveys documented growing populations of scallops in the closed area and the cooperative research program was initiated in 1998. The program involved many here today, including our Northeast Science Center, U-Mass Dartmouth, the fishery survival fund and several fishing vessels. It collected essential data on scallop density, habitat and bycatch. It was used by the New England Council to develop an exempted fishery for closed area two. In setting the ground rules for the fishery, the Council and NOAA Fisheries incorporated a number of conservation safeguards. First, the fishermen agreed to a cap on bycatch of yellowtail flounder and modified their nets and fishing practices to minimize that bycatch. They also use electronic reporting to track landings and avoid hitting the cap.

Second, the Council established an observer coverage target of 25 percent. Scallopers carrying observers were allowed to harvest additional scallops to finance observer costs through an innovative arrangement with the National Fish and Wildlife Foundation. To the extent possible, fishermen were trained as observers. Finally, additional surveys were made to assess the effects of the fishery on habitat. The results was a limited opening that put as much as $40 million in the southeast New England fishing communities.

In addition, the improved conditions of the scallop resource will allow fishermen to forego the reductions in days at sea scheduled for the upcoming fishing year. The Council is now following up with a proposal to expand the exempted fishery this year and formalize an area rotational system in the scallop plan.

Recent appropriations by Congress will significantly increase opportunities for such partnerships in other northeast fisheries. More than half of the new funds provided in our fiscal 2000 budget will be dedicated to cooperative research activities. The remainder will support the deployment of observers, data collection and analysis and agency costs for collaborative research and enforcement. NOAA Fisheries will work with the New England Fishery Management Council, the fishermen and the academic community to ensure that research projects target priority issues and are grounded in good science.

I also want to reiterate our commitment to improving our understanding of the potential economic impacts of management measures on fishing communities. Progress toward addressing this issue requires additional funding, and the NOAA budget requests $2.5 million to establish a core economic program and develop a national economic data base. In addition, we have requested $1 million for the collection of social and economic data to improve analyses for management.

I will conclude by saying that NOAA Fisheries is continuing to work to fully implement the changes made by Congress in 1996 and to strengthen our foundation for future management decisions. Our goal is restored fisheries that support a healthy coastal economy and the vibrant fishing industry that is New England's tradition. Thank you.

Senator SNOWE. Thank you, Ms. Dalton.

Mr. Hill.

STATEMENT OF TOM R. HILL, CHAIRMAN, NEW ENGLAND FISHERY MANAGEMENT COUNCIL

Mr. HILL. Thank you, Madam Chairwoman and members of the Committee. I'm grateful to be here this morning in order to offer our Council's perspective on the implementation of the 1996 amendments to the Magnuson-Stevens Act.

First, I want to indicate that it is my opinion and I believe the opinion of our committee that—of our Council, rather—that the basic tenants of the Sustainable Fisheries Act are sound. And that although we have wrestled with some components of the implementation of the Act, the fundamental tenants of the Act are sound and we look forward to working with the Committee in dealing with the refinements that are necessary.

I also want to thank both Senator Snowe and Senator Kerry and Senator Stevens, all of you for your support on dealing with the cooperative research effort this year. I think that program will I think contribute benefits to our relationship with the industry and the relationship with the scientific community that will be multifold, and I suspect that as we enter into that over an extended period of time that we'll see the benefits that come from that kind of cooperation.

I also wanted to touch on what I think is a significant point that's already been made, and that is that we are making progress with many of our stocks. That the issue noted here earlier of scallops the recurrence and resurgence of scallops has added tremendously to the economic opportunities of the fishing industry. We've also had a significant recovery of haddock. In fact, we've gone from a 500-pound trip limit only several years ago to a 50,000-pound per trip limit, and that's a significant recovery. In addition, we've had gray sole and George's Bank yellowtail flounder and a number of other stocks that are on the mend, and I believe that is a consequence of the implementation of management regulations that the Council has put into place.

On the other hand, we do have some challenges. We've—as the Sustainable Fisheries Act required—why we've had to implement a number of management plans and a number of amendments in order to alter existing plans or to implement new ones for either fish stocks that did not have management plans in place, or to alter the plans in order to achieve the rebuilding schedules as required under the Act.

I won't go into all of the requirements of the Act. I'm sure you're all familiar with them. But I want to emphasize it is not just a case of the inclusion of this information in the fisheries management plans, it often tends to, in order to stay on schedule where we're required to amend those plans on an annual basis, particularly

those plans where we have significant overfishing that requires closer scrutiny versus less scrutiny. And as a result of that, we're amending and/or changing management regulations on an annual basis. And that burden is significant. As well as dealing with all of the other requirements under the Act, and this includes dealing with SAFE reports, largely a staff work product, more comprehensive social and economic analyses are necessary and required under the revisions of the Act. Many of the Council meetings that used to be one or two days long are now three days long. And the number of committee meetings that are required in order to deal with the complex issues that are at stake here in New England require extended oversight committee meetings in the various communities that are affected.

I won't take the time to list all of these items because the mandates are not appropriate, but to note that the number of meetings and the amount of effort that is required to deal with these is significant. The workload of the Council has more than doubled over the last couple of years. And the resources that the Council has had at its disposal has not kept pace with that doubling of effort. In fact, in order to address that very serious issue, and it's a significant issue, we had staff working 70 and 80 hours a week for extended periods of time. I want to compliment my staff publicly. They've done an extraordinary job in keeping up with the demands that have been placed on them. I am proud of every single one of them.

On the other hand, that pace could not be sustained. And we have recently—the Council has agreed on a series of initiatives for this coming year, and it left out a number of items that we just are not capable of dealing with. And it includes the development of an annual or an adjustment including limited entry for whiting. It included an industry-supported controlled access system for herring. It included an FMP for red crab, which is a fishery that has collapsed in the past, and is now, we believe, at near sustainable levels. And yet we're not going to get to that this year. And there are measures that we feel are necessary to deal with capacity issues in New England. We've got far more capacity than we've got resources available in various portions of our fisheries.

And due to these complex issues and reasons why I would only bring to the Committee's attention that the Council has very good intent but nevertheless a big challenge in front of it in trying to deal with these very complex subjects.

Finally, I want to add a personal note. When I was elected as Chairman of the Council, one of the commitments I made was to do—to bring to the Council a more orderly way of developing our fisheries management plans. As the Committee knows, New England has had a reputation for a rather lively environment at our Council meetings. We have been working since I've been elected at trying to bring a little more deliberative perspective to the development of management plans. And we have done that. And I think that it's a credit to the members and to the industry that they've worked with us in order to work through our Subcommittee process in developing options that are deliberated by the full Council. We needed to avoid the midnight decisions that were occurring on occasionally after an 18-hour meeting. We don't make good decisions

under that kind of environment. I don't believe the Senate would do so, and I don't believe a regional management Council ought to do that.

And in closing, I believe that it is important for our region to deal with the challenges before us, but we need to do so in an orderly manner. It is my commitment to do outreach with the industry. In fact, I'm going to be in Maine a couple of weeks from now meeting with industry groups, with Pat Kurkul, and we're making an effort to do public outreach. We're making an effort to make the process understandable and to be accessible to all of the industry participants. There is a corresponding responsibility on their behalf to deal with the management system that the Congress has put into place. And we look forward to doing that to the benefit of the region and the Nation as a whole. And I'd be happy to answer questions at the appropriate time. Thank you.

[The prepared statement of Mr. Hill follows:]

PREPARED STATEMENT OF TOM R. HILL, CHAIRMAN,
NEW ENGLAND FISHERY MANAGEMENT COUNCIL

I would like to thank the members of the Subcommittee for inviting me here to offer our Council's perspectives on the implementation of the 1996 amendments to the Magnuson-Stevens Act. First, let me say that while I believe there are some issues of concern, I also believe that, overall, the Act is a sound piece of legislation. The New England Council's revised fishery management plans have produced some substantial improvements in the status of many of the commercially valuable species we manage. Haddock, gray sole (witch flounder), Georges Bank yellowtail flounder and sea scallops in particular, are among our success stories and I would like to take a moment to discuss them.

Haddock—The adult stock biomass has increased fourfold since 1993 and is at its highest levels since the early 1980s. Stock biomass is expected to continue to increase because of low fishing mortality and favorable recruitment in 1998.

Gray sole—This traditionally valued flounder species in the Gulf of Maine has rebounded to near maximum sustainable yield conditions. Favorable recruitment (new fish entering the population each year), lower fishing mortality and reduced bycatch in small mesh fisheries have contributed to its resurgence.

Georges Bank yellowtail flounder—The total stock biomass has increased in both 1998 and 1999 to its highest level since 1973 and could be rebuilt in about three more years. The 1997 year class is the largest observed since 1973, and since 1996, fishing mortality is lowest observed in over 20 years.

Sea scallops—The biomass on Georges Bank is the highest observed since 1982, primarily in the groundfish closed areas and due to favorable recruitment. Biomass in the Mid-Atlantic increased in 1998, but still remains below the management target, although overall fishing mortality has declined significantly from effort reductions and closed areas. Furthermore, the Council's 1999 groundfish closed area access program provided a much-needed economic boost to the scallop industry while at the same time conserving yellowtail flounder and protecting areas with sensitive habitat.

These are some of the positive results that have been achieved through fishing regulations and the sacrifices of New England fishermen. On the other hand, we continue to face several serious challenges. The new requirements of the Magnuson-Stevens Act, as amended by the Sustainable Fisheries Act (SFA), have placed an enormous burden on Council members and its staff, as well as on the National Marine Fisheries Service, without providing a commensurate increase in resources to carry out the new mandates.

While the previous Magnuson Act, along with National Standard guidelines already required the Councils and the Secretary of Commerce to take steps to end overfishing and rebuild depleted stocks, fishery management plans (FMPs) must now specify for each stock:

- objective and measurable criteria for identifying whether a fishery is overfished;

- if a fishery is overfished or approaching an overfished condition, the plan must contain measures to prevent overfishing or to end overfishing and rebuild the fishery;
- the plan or amendment must be developed within one year of notification by NMFS that a stock is overfished or approaching an overfished condition and must specify rebuilding periods that "are as short as possible," but are not to exceed 10 years; and
- if rebuilding plans call for reduced harvests, the restrictions and recovery benefits must be fairly allocated among the harvesters.

Plans must, to the extent practicable, also address bycatch issues, including minimizing bycatch and the mortality of bycatch that cannot be avoided. Further, FMPs must now describe and identify essential fish habitat (EFH), minimize "to the extent practicable" adverse effects on such habitat, and identify other actions to encourage the conservation of such habitat. Fishery impact statements also must assess the likely effects of management measures on fishing communities and, to the extent practicable, minimize economic impacts (National Standard 8).

I want to emphasize that work does not simply cease with the inclusion of this information in fishery management plans. In order to stay on schedule with many of the new stock rebuilding plans, FMPs require annual reviews and adjustments to assess progress, as well as Stock Assessment and Fishery Evaluation (SAFE) reports, largely a Council staff work product. More comprehensive social and economic analyses are necessary to meet Regulatory Flexibility Act (RFA) requirements to adequately respond to National Standard 8. Many Council meetings are now several days longer to provide for the level of public input generated by the imposition of new and often very complex management measures. The development of new measures also has required more frequent meetings of our oversight committees, resulting in a corresponding increase in related costs. As you know, our Council also will have an additional seat beginning in August, adding to our overhead.

I take the time to list all these issues, not because the SFA mandates are not appropriate, but to emphasize that the steps undertaken to meet the new requirements have increased the Council's workload by well more than 100 percent. In response to SFA, our Council has developed four new FMPs (for herring, monkfish, whiting and dogfish), six plan amendments (for groundfish, scallops and for essential fish habitat (EFH) designations), seventeen framework adjustments and three SAFE reports—an enormous body of work by almost any standard. All of these actions have been completed since 1997.

In contrast, increases in Council funding since 1997 have totaled approximately 28 percent. While I assure you that our work is being accomplished, it is occurring at a pace that cannot be sustained. Without question, more resources are needed to enable the Council to continue to meet its responsibilities, including maintaining public outreach efforts and meeting with affected stakeholders.

In order to address this very serious situation, the Council recently developed a list of priorities for the purpose of focusing on what it could realistically accomplish in 2000. The document was as significant in what it listed as initiatives as for the issues that were postponed for consideration until 2001. Council actions in 2000 will include:

- Groundfish Amendment 13—to develop SFA rebuilding plans;
- Skate management measures—the Council was recently given management authority for seven skate species, four of which are overfished and will require the development of rebuilding plans within one year;
- Sea Scallop Amendment 10—to develop a rotational area management system;
- A framework adjustment for whiting—to develop measures for a raised footrope trawl fishery;
- A framework adjustment for monkfish—to review the effectiveness of management measures implemented in 2000 and make any necessary changes;
- Annual specifications for Atlantic herring fishery—these include only optimum yield, domestic annual harvest, domestic annual processing, the total amount allocated to processing by foreign ships, the amount of herring that can be taken in U.S. waters and transferred to Canadian herring carriers for transshipment to Canada and an allocation for internal waters processing;
- A Habitat Annual Report—including the possible development of a dedicated habitat research area, EFH designations for the seven skate species and a formal process for designating habitat areas of particular concern (HAPCs);

- Research Steering Committee activities—to provide input to NMFS concerning the expenditure of Congressional appropriations earmarked to fund cooperative research efforts developed by fishermen and scientists; and
- U.S.-Canada activities—to support efforts to coordinate the management of transboundary stocks, especially the rapidly rebuilding Georges Bank stocks of haddock and yellowtail flounder; it is of critical importance to maintain a New England perspective in this arena through Council and grassroots involvement.

Because of the need to make choices given the overall workload and the shortage of resources with which to accomplish these tasks, the Council will not address a number of key issues this year. Actions to be deferred until next year are:

- the development of a whiting annual adjustment with a limited entry program and establishment of Total Allowable Catch levels;
- consideration of an industry-supported controlled access program for the herring fishery;
- an FMP for red crab; and
- measures to address capacity in New England fisheries.

In the case of the Spiny Dogfish Plan, the Mid-Atlantic Council is the lead and therefore will assume most of those plan development responsibilities. These decisions were difficult ones, especially in view of the level of industry interest in most of the programs listed.

Personally, I am very concerned about the potential consequences of inaction this year. Whiting is an overfished resource. Alternatively, herring is a healthy resource that could only benefit from pro-active management. We witnessed the collapse of the red crab fishery in the mid-1980's because of increased effort by new boats which could not be supported by the available resource. Estimates of landings this year suggest that the red crab fishery may be operating at close to maximum sustainable yield levels at this time, and the Council is concerned about the long-term stability of this fishery absent a management plan. The expansion and contraction of fishing capacity remains one of the most important issues yet to be addressed in our region and one that merits attention if we are to achieve sustainability in our fisheries.

Ideally, I would like to report to you that we will undertake all of the actions and initiatives listed above. With our current funding shortfall for fiscal year 2000 and a greater shortfall projected for next year, which includes the addition of new staff, however, I am at a loss to determine how we may accommodate any workload increase. We will be unable to add additional staff and schedule the necessary meetings to consider action on the issues that are currently deferred.

Finally, I would like to add a personal note here. When I was elected Council Chairman last August, I made a commitment to ensure an awareness of and support for the benefits of sound, long-term resource management. I believe I have held to that commitment. However, I also pledged to increase the Council's outreach and education efforts and to pay special attention to fishermen who have traditionally been out of the mainstream, those who rarely attend our meetings, but who are nonetheless affected by our actions. It is perhaps one of my greatest personal disappointments that informal meetings with fishermen's associations and information exchanges in other venues outside of the formal atmosphere of Council meetings, will likely not occur because our staff simply cannot undertake these activities. To do so would compromise the timely completion of our management responsibilities.

I believe I have made my point to the Subcommittee. The New England Council is striving to comply with the SFA requirements. We have committed Council members and an experienced and hard-working staff. We have made significant progress in rebuilding fish stocks to sustainable levels, but we are in real need of increased resources to do the job right. I sincerely hope you will give this issue serious consideration.

Madam Chairman, I would like to thank you for this opportunity to comment on the implementation of the Magnuson-Stevens and Sustainable Fisheries Acts. I'm happy to answer questions or provide further information about the issues I have brought forward here today.

Senator SNOWE. Thank you, Mr. Hill. Admiral Naccara.

STATEMENT OF REAR ADMIRAL GEORGE NACCARA, COMMANDER OF THE FIRST COAST GUARD DISTRICT, BOSTON, MA

Admiral NACCARA. Good morning, Madam Chairwoman, and distinguished members of the Subcommittee. I'm George Naccara, Commander of the First Coast Guard District. On behalf of the Commandant, Admiral Jim Loy, thank you for the opportunity to appear before you today to discuss the Coast Guard's efforts in support of the Magnuson-Stevens Fishery Conservation and Management Act.

Please let me explain to you that I've been on the job for just over six weeks, and I'm working hard to understand the complexities and the subtleties of our fisheries program.

Let me begin by outlining our operations today. Four cutters and two aircraft are on patrol as part of our ongoing operation called "Atlantic Venture." Coast Guard personnel are also conducting increased at-sea and dock-side voluntary commercial fishing vessel safety examinations as part of our operation "SAFE CATCH," an Atlantic area-wide initiative to reduce lives lost at sea.

First District unit commanders are also conducting operation "Tango Orange," interfacing with coastal fishermen and vessel safety and multispecies fisheries enforcement. Our cutters, boats, and aircraft are also positioned and prepared to respond to any emergent search and rescue case. This is certainly critical in winter when bitter-cold temperatures and frequent heavy weather drastically reduced survival times.

The Coast Guard is firmly committed to providing effective at-sea enforcement of fisheries management schemes established by the Fishery Management Councils and the National Marine Fisheries Service under the Act. We work closely with the National Marine Fisheries Service, the National Oceanic and Atmospheric Administration, and all stakeholders to exercise this stewardship.

Of course, the fishing industry continues to play an integral role in the New England culture and economy. New Bedford, Massachusetts is second only to Dutch Harbor, Alaska in the value of domestic catch landed in the U.S., and the industry, both commercial and recreational, provides approximately $1.5 billion of revenue to the region.

The First Coast Guard District encompasses the lateral Northeastern United States from Shrewsbury River, New Jersey to the Canadian border, out to 200 nautical miles off-shore. The fishery management plans have implemented closed area and regulated areas throughout this region. There are numerous year-round, seasonal and protected species enforcement schemes in effect throughout the northeast. This chart reflects some of those areas. Over 10,000 square nautical miles of year-round closed areas, when combined with over 60,000 square nautical miles of seasonal closures and regions delineated to protect endangered marine mammals, comprise a large proportion of the available fishing area.

To carry out our enforcement responsibilities under this contract, the Coast Guard has adopted a strategic plan called "Ocean Guardian" that outlines the Coast Guard's long-range strategy to provide effective enforcement in support of national goals for fishery resource management and conservation. Under this Ocean Guardian

program the First District conducts Operation Atlantic Venture, an operation based on an intelligence-driven framework for Coast Guard patrols enforcing the 13 Fishery Management Plans, the Marine Mammal Protection Act, and the Endangered Species Act involving more than 40 different species of marine life.

In fiscal year 1999 alone, First District units contributed more than 19,000 resource hours to these operations. Future modernization is important if our fisheries law enforcement efforts are to be sustained. The Coast Guard, through the innovative Deepwater Capability Replacement Project, is addressing these modernization needs. The project is designed to ensure timely acquisition of systems that will leverage technology to meet the demanding mission requirements.

As I've indicated previously, there is an enduring demand for our unique off-shore enforcement capabilities under this Act. The Deepwater Project is the Coast Guard's plan to ensure that this capability exists into the future. And I ask for your full support of the President's fiscal year 2001 funding request for this project of national importance.

We do not conduct the fisheries enforcement mission alone. In carrying out our mandate, we partner with the National Marine Fisheries Service, the NOAA General Council, and many state agencies such as the Massachusetts Marine Environmental Police and the Maine Marine Police, local fishing industry groups, and of course, the New England Fishery Management Council. Together, we all work to achieve a balance of safety, enforcement effectiveness, and service to the industry.

Our focus as a non-voting member of the Council is on enforcement and safety issues. The Act provides the mechanism the Coast Guard needs to address these issues, particularly with the 1996 addition of the National Standard 10. An enforceable plan that encourages safety at sea is essential to ensuring the safest environment possible for the fishing community. We view the well-being of fishing vessel crews and their vessels as our highest safety priority. During the past few months the Coast Guard has been conducting a commercial fishing vessel safety initiative called "Operation SAFE CATCH" along the Atlantic Sea Board and the Gulf of Mexico. Operation SAFE CATCH is the Coast Guard's effort to expand at-sea and onshore vessel examinations. During these examinations fishermen are required to meet regulatory demands including specified safety equipment as well as to encourage the fishermen to critically examine the non-regulated material condition of their vessels for safety deficiencies, such as hull condition, vessel stability, and watertight integrity. During the first 90 days of this Operation SAFE CATCH, we identified more than 100 commercial fishing vessels in our district that are high risk. Every one of these vessels was approached in port and assisted by Coast Guard personnel to reach higher safety standards. The early results of this operation are very promising.

I also remain focused on our people that carry out this important national mission. Maintenance and availability problems with cutters and aircraft, workforce shortages, and decreasing levels of experience have necessitated a 10 percent cut in medium endurance cutter hours and the reduction of aircraft hours dedicated to law

enforcement in this fiscal year. In 1999 the Coast Guard faced the same challenges as the other services in recruitment and readiness. We are requesting additional resources for recruitment and retention initiatives in fiscal year 2001 that are necessary for the Coast Guard to maintain a ready work force. Funds requested in 2001 will provide an important first step in enabling us to train, retain, and outfit our personnel allowing us to meet national objectives.

The Coast Guard is a key partner in the complex fisheries sustainability. Sustaining our country's natural resources and ensuring the safety of fishermen are high Coast Guard priorities. Our contributions will be most effective only with the continued cooperation and support of fishing communities, the Councils and state and local agencies. This Act provides the tools we need to address Coast Guard fisheries concerns, and I do not recommend any changes.

Thank you for your continued leadership and support of the Coast Guard and for providing this opportunity to discuss these important issues with you today. I'll be happy to answer any questions.

[The prepared statement of Rear Admiral Naccara follows:]

PREPARED STATEMENT OF REAR ADMIRAL GEORGE NACCARA, COMMANDER OF THE FIRST COAST GUARD DISTRICT, BOSTON, MA

Good morning, Madam Chairman and distinguished members of the Subcommittee. I am Rear Admiral George Naccara, Commander of the First Coast Guard District. On behalf of the Commandant, Admiral Jim Loy, thank you for the opportunity to appear before you today to discuss the Coast Guard's efforts in support of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA).

The Coast Guard is firmly committed to providing effective at-sea enforcement of fisheries conservation and management programs that are established by the Fishery Management Councils (FMCs) and the National Marine Fisheries Service (NMFS) under the MSFCMA. We recognize that the proper stewardship of our fisheries resources, and of all marine protected species, is of great importance to protect both the environment and the economic impact fisheries have on this nation. We work closely with NMFS, the National Oceanic and Atmospheric Administration (NOAA), and all stakeholders to exercise this stewardship.

The fishing industry continues to play an integral role in the New England culture and economy. New Bedford, Massachusetts is second only to Dutch Harbor, Alaska in the value of domestic catch landed in the U.S., and the industry, both commercial and recreational, provides approximately one and one-half billion dollars of revenue to the region. American lobster is the single most valuable marine species landed in the U.S.—worth over $253 million in 1998.

The First Coast Guard District encompasses the Northeastern United States from Shrewsbury River, New Jersey to the Canadian border. This area includes such traditional and bountiful fishing areas as Georges Bank, Davis Bank, and the Southern New England Canyons. To help sustain the fisheries in this vast area, the fishery management plans (FMP) and amendments have implemented closed areas and regulated areas throughout the region. The following list reflects the enforcement regions for fiscal year 2000:

- 10,600 square nautical miles of year-round closed areas (Closed Areas I & II (CA I/II), Western Gulf of Maine (WGOM), and Nantucket Lightship Closed Area (NLCA);
- 3,400 square nautical miles of year-round restricted gear areas (to prevent gear conflicts);
- 53,200 square nautical miles of seasonal closed areas (rolling closed areas);
- 5,280 square nautical miles of critical habitat (to protect the northern right whale);
- 490 square nautical miles of marine sanctuary (Stellwagen Bank);

- 15,000 square nautical miles of pinger-only gillnet areas (to protect harbor porpoises);
- And, in just a few weeks, an additional seasonal closure covering 6,000 square nautical miles of fishing grounds north of the tip of Cape Cod designed to protect the threatened Gulf of Maine cod stocks.

Enforcement of the fisheries regulations associated with these specific areas, in addition to protecting the more than 100,000 square nautical miles of the Exclusive Economic Zone (EEZ) off New England, is a high priority to the Coast Guard. To carry out our enforcement responsibilities under the MSFCMA, the Coast Guard has adopted a strategic plan, OCEAN GUARDIAN, that outlines the Coast Guard's long-range strategy to provide effective enforcement in support of the national goals for fisheries resource management and conservation. Under OCEAN GUARDIAN, the First District conducts the only permanent operation dedicated to fisheries enforcement in the Atlantic, Operation ATLANTIC VENTURE. ATLANTIC VENTURE is based on an intelligence-driven framework for Coast Guard offshore enforcement operations. It also guides our cutter and aircraft commanders who are tasked with enforcing the 13 fishery management plans, the Marine Mammal Protection Act (MMPA), and the Endangered Species Act (ESA), involving more than 40 different species of marine life. In fiscal year 1999 alone, the First District devoted more than 29,000 resource hours to patrolling offshore by Coast Guard aircraft and cutters in support of living marine resource regulations. In addition, we conducted nearly 1,600 boardings, resulting in improvements to commercial fishing vessel safety and improved compliance with the fishery management plans.

We do not conduct this enforcement mission alone. In carrying out our mandate to enforce fisheries conservation and management regulations, we partner with NMFS, NOAA General Counsel, state agencies, local fishing industry groups, and the New England Fishery Management Council (NEFMC). Together, we all work to achieve a balance of safety, enforcement effectiveness, and service to the fishing industry, thus ensuring the long-term sustainability of our living marine resources.

The NEFMC, consisting of representatives from maritime states, environmental organizations, and fishing communities, exists under the authority of the MSFCMA and serves to produce management measures to attain sustainable fisheries. As I said, we partner closely with the Council, and we participate in the Council as a non-voting member to advise on the enforceability implications of proposed fisheries management plans and the impact of those plans on fishing vessel safety. It is imperative that safety and enforceability concerns be addressed in the regulation development process. Adequate weighting of enforceability can be a challenge as many variables including statistical, biological, and social considerations factor into this complex decision-making process. Regulations that may tempt smaller coastal fishermen farther offshore to fish or exemptions to closed areas that reduce the effectiveness of our enforcement efforts are of concern to me. The MSFCMA provides the mechanism the Coast Guard needs to address these issues, particularly with the 1996 addition of National Standard Ten. An enforceable plan that encourages safety at sea is essential to ensuring the safest environment possible for the fishing community while ensuring the sustainability of the living marine resources of our nation.

We view the well-being of fishing vessel crews and the safety of their vessel as our highest safety priority. During the past few months, the Coast Guard has been conducting a commercial fishing vessel safety initiative called Operation SAFE CATCH along the Atlantic seaboard and in the Gulf of Mexico. Operation SAFE CATCH is the Coast Guard's effort to expand the focus on at-sea and onshore examinations. During the examinations, fishermen are required to meet regulatory demands including specified safety equipment (immersion suits, life rafts, and Emergency Position Indicating Radio Beacons (EPIRBS)). We also encourage the fishermen to critically examine the non-regulated material condition of their vessels for safety deficiencies. Areas of critical importance are the hull condition, vessel stability, and watertight integrity. When vessels capsize and sink at sea, the reason is usually related to one or more of these physical conditions of the vessel. Many watertight integrity and stability issues are based on a lack of crew awareness and training. These non-regulatory measures are founded on good engineering practice rather than regulation, and our primary focus is to educate the mariner and improve the seaworthiness of the vessel.

Operation SAFE CATCH continues the Coast Guard's strong emphasis on people helping people in our common workplace, the open ocean. During the first 90 days of Operation SAFE CATCH, we identified more than 100 commercial fishing vessels in our district as "high-risk" vessels. ("High risk" is defined as any vessel that engages in a high-risk fishery (e.g., inshore scallop, urchin, or derby fishery); has a

history of prior safety violation or casualties; has a history of material conditions requiring serious search and rescue interventions; or upon boarding, is found to have conditions warranting termination.) Every one of these vessels was approached in port and assisted by Coast Guard personnel to reach the higher safety standards. The early results of this operation are promising. In fact, I believe it has already saved lives.

I also remain focused on my people that carry out this important national mission. In 2000 and 2001, active duty military full-time equivalents (FTE) will increase by 959. This significant increase will improve the Coast Guard's operational capabilities both in the First District and nationwide. Although attracting quality candidates to serve in the military remains a challenge, the Coast Guard recently has been as successful as the other sea services in recruitment, and the fiscal year 2001 budget includes an increase in recruitment funds. The Coast Guard is building on this success by requesting additional recruitment and retention initiatives in fiscal year 2001. Funds requested in 2001 will enable us to train, retain, and properly outfit Coast Guard personnel, allowing the Coast Guard to meet national objectives and giving Coast Guard personnel the right skills and equipment to do their jobs safely and effectively.

Future modernization is also important if our fisheries law enforcement resources are to be sustained or improved. The Coast Guard, through the innovative Deepwater Capability Replacement Project, is addressing the modernization needs necessary to provide this important enforcement through the coming decades. The project is designed to ensure timely acquisition of a system of systems that will leverage technology to meet the demanding mission needs in the offshore environment. As I have indicated previously, there is an enduring demand for our unique offshore enforcement capabilities to enforce the fisheries conservation and management goals of MSCMFA, as well as increasing responsibilities under the MMPA and ESA. The Integrated Deepwater System is the Coast Guard's plan to ensure that this capability exists into the future and I ask for your full support of the President's fiscal year 2001 funding request for this project of national importance.

The Coast Guard is a key partner in the complex fisheries sustainability effort and we appreciate being included in the continuing efforts to implement and, when necessary, improve the MSFCMA. Sustaining our country's natural resources and ensuring the safety of fishermen are high Coast Guard priorities. We are dedicated to reaching both goals, realizing our contributions will be most effective only with the continued cooperation and support of fishing communities, the councils, and state and local agencies. The MSFCMA provides the tools we need to address Coast Guard fisheries concerns and, as such, I do not recommend any changes during this re-authorization.

Thank you for your continued leadership and support of the Coast Guard, and for providing this opportunity to discuss these important fisheries issues with you today. I will be happy to answer any questions you may have.

Senator SNOWE. Thank you. Thank you all for testifying here this morning.

Ms. Dalton, I'd like to begin with you, and Admiral, I'd like to have you jump in. I want to begin, with the whole issue of the groundfish industry, obviously rebuilding the cod stocks here in New England. Again, I think it sort of underscores some of the problems that we're facing with the implementation of the Act and the decisions that are made and so on. We're at 20 days out before the beginning of the fishing season for the groundfish industry, and NMFS has yet to approve the changes that were made by the Council in January. Now, you know last year there were five different plans and adjustments to the groundfish industry and with respect to closures and trip limits and all the other implications of those decisions, the industry ultimately faced five different plans last year. Here we are 20 days out and they have yet to receive an indication from your agency in terms of what is going to be approved, disapproved and so on. That's wrenching for an industry. That it's obviously so important here and to New England, but for all of the people who rely on industry, they don't obviously know;

they can't plan. It's very difficult. So can you tell us exactly what has happened and why the agency has not yet made that decision?

Ms. DALTON. The final rules should be coming out within the next couple of days. So I'm not, right now, since it hasn't come out, I'm not supposed to, I guess, talk about what's in the rule, but it will be out within the next couple days.

Senator SNOWE. Could you give us an indication as to why it takes so long when you have an industry that relies on a course of action? We know what happened last year in the 1999 season. It was a very difficult experience for the groundfish industry.

Mr. Hill, I'd like to have you jump in here because, something happened in which the scientific objectives were not met by the original decision and subsequent decisions by the Council, because a third of entire catch was caught in the first three weeks of the season. Obviously, the action missed its mark and never would have worked had it been in effect throughout the entire season. So what has happened here? This is something that we've got to avoid in the future. You stated, Ms. Dalton, that we have to minimize economic consequences and make adjustments. I think everybody understands that along the way there will be adjustments, but you had five different plan amendments in one season and still missed the mark. Here we are 20 days out from beginning the new season, and we have yet to make those decisions. So for one, it's the process. Second, how were the scientific objectives approved that ultimately did not achieve the goal?

Mr. HILL. Thank you, Senator. I appreciate the opportunity to comment on the subject. The development of an FMP or its amendment or framework action is, starts from the Committee. The Committee develops with the industry three or four or five different options that they bring to the Council. During the development of framework 33, there were several options that were brought to the Council. One was to increase the closed area significantly. The other was to decrease the number of days, opportunity days in the industry. The third was a combination of closed areas and trip limits. The decrease in the number of days at sea would have prevented the discards that we have experienced. That was not a popular option because those days, opportunity days, if we reduced them would have affected other participants in the fishery who were not targeting groundfish or were not targeting Gulf Maine codfish would be a better way of describing it.

The combination of days at—of closed areas and trip limits—was ultimately decided to be the best tool, but nobody anticipated—I don't believe anybody anticipated, including the scientific community or the Council—that at the same time this rule was being implemented, we had a significant movement of fish in-shore that was right in the areas where these fishermen were fishing. We had what is called "sand eel bloom," which is a bait fish and codfish chase those. And when they show up, why the codfish show up, and nobody anticipated that, and as a result we had very high landings and very high discards in a very brief period of time. It was the Council's perspective that there was an automatic trigger involved in the trip limit system that if we got to a certain point in the target quota that a lower trip limit would be triggered. And all that

did, unfortunately, was to increase the number of discards that occurred.

There are some clear options to deal with that. One, we could have gone to a quota system, which was not popular, that would have closed the fishery subsequent to reaching a certain target. The other was we could have used days at sea as a methodology which when they used up their days at sea, the reduced level of days at sea, they would have stopped, individually stopped fishing. There were several options that would have avoided the experience we had last year. Neither of them were popular. Neither of them gained the kind of support in the Committee in the development of the framework that brought it to the Council that it had a chance, that either of them had a chance of being approved. In retrospect, would the Council have done something different? I suspect so. Will the Council be looking? We're engaged in development of Amendment 13 right now which is going to look holistically at groundfish management in dealing with the consequences of that action. And I suspect we may take a different path in the future, but I must tell you that it is profoundly complex. Groundfish stock represents 13 different species. They're all caught in varying combinations.

We've got different sectors of the fishery saying, I can go fishing for this particular species, and I won't catch many codfish, so why are you impacting me by creating these kinds of regulations? It's very complex. I wish it was simple. It's not like individual species management like scallops where you're basically establishing a regulation for a single species. Multispecies management, the reason we chose—and I know this is a long-winded answer, but it's a very complex subject—the reason that the Council initially chose days at sea as a methodology for managing fisheries in New England in 1993 was for the very reasons that we've experienced when we've gone toward other management methodologies. And there were reasons to go in that direction. And my personal opinion, they were not sufficient to overcome the reasons to not use days at sea. But that is a personal opinion. That was not the collective opinion of the Council, and we therefore have the circumstances we have today.

Senator SNOWE. To follow-up, the question is: With five different regulation changes, at what point does it work?

Mr. HILL. Okay.

Senator SNOWE. And that's the issue here. The scientific objectives were not met. What is the problem?

Mr. HILL. The problem is——

Senator SNOWE. Is it the information? Is it the will? Obviously we expect adjustments, but having five different regulation changes in a given year and missing those objectives creates a problem. That's what I'd like to underscore here, to see if we can get to the heart of the matter.

Mr. HILL. Well, I think I testified earlier in Washington from an individual perspective before I ascended to the chair. And my opinion, personal opinion, is that the reason we keep exceeding our mortality targets is because we can't agree on a methodology that will keep us within them. And the reason we can't agree on that methodology is because it has allocation implications and many in-

dustry people don't agree with the science that underpins the rationale that we're using to set our targets. And result ofthat, we've used what are generally called "input controls," which are closed areas and other methodologies to try to control fishing mortality without closing the fishery.

My opinion is that it is—this is a personal opinion—I'm not speaking for the Council—but it is my opinion that when we exceed our mortality targets why we do ourselves no service as all. The following year we're back at the table trying to figure out how to cut mortality further. And that's been the history of this fishery here in the region. It is a lack of consensus—to get at your question—it is a lack of consensus in the industry and on the Council on what the appropriate target should be, and then what methodology should be used to ensure that we do not exceed our targets. And currently, there has been no consensus in New England that we would be choosing hard quotas as is used in Alaska and the North Pacific as a methodology of controlling fishing mortality. It's a significant issue. When you're using input controls and other soft targets, the risk factor is very significant. And in my opinion, in this particular instance, why it has demonstrated one of the fundamental weaknesses of that methodology. Is there a consensus to go in a different direction? I certainly hope so. But I won't know that until we develop Amendment 13 and take a look at the consequences of using a methodology that has within it the potential of this kind of what I'll call "discard problems." And in fact, exceeding the TAC. That's the best answer I can give. And if I haven't been clear, I'd be happy to have another shot at it. But I suspect the other speakers might offer some additional comments.

Senator SNOWE. Thank you. Admiral Naccara, you mentioned that you're going to be reducing operational air patrol hours by 50 percent. I recently had a chance to talk with the Commandant of the Coast Guard, Admiral Loy, about the need to reduce the operational pace to provide more training and to maintain equipment. But this is a significant reduction in air patrol hours. What will be the general impact and what will happen during this fishing season?

Admiral NACCARA. Thank you, Madam Chairwoman. It was not quite 50 percent. What I discussed was some amounts, 10 percent on our cutters, medium endurance cutters in particular, and probably 14 to 15 percent on air surveillance time. It's an effort on the part of the Coast Guard to try and restore readiness in the Coast Guard. We have noted many readiness shortfalls during the last couple of years. And we're trying to establish an equilibrium in which we can still sustain normal operations, we can perform the appropriate amount of training, maintenance, and administrative work and at the same time not impose any unreasonable workload on our folks while still having that search capability to respond to emergencies.

We found that was absolutely necessary for this year. And I'm hoping that we can once again return to our normal numbers, both for surface and air surveillance next year.

What does that mean for us? It means fewer cutters on patrol in the Atlantic. It means fewer aircraft in the air. For us in the First District, it's going to mean a substantial cut back in the number

of aircraft patrolling the fishery zones. It will mean less cutters involved with drug law enforcement. It will mean less harbor patrols for the Coast Guard in our internal waters. It could have a potential impact on pollution in the harbors if we're not there with the same level of presence that we normally have. There could be a probable change on those different issues. We'll still have the capability to respond to emergencies in any case, but we found this absolutely necessary, ma'am.

Senator SNOWE. That does represent a serious reduction.

Admiral NACCARA. Yes, it does.

Senator SNOWE. So it could be 14 percent? Or it could be more?

Admiral NACCARA. Yes, that's it. That's true.

Senator SNOWE. From what I understand, that's not been established. Is that true?

Admiral NACCARA. Well, our Atlantic Area Commander established limits, and we're working to try to meet those. Now, a 10 percent cut over the fiscal year since being implemented halfway through the year will be an appreciably higher number in the short-term. So for us in First District, it could mean as much as 35 percent cut back in the short-term for the remainder of this fiscal year.

Senator SNOWE. Thank you. Senator Kerry.

Senator KERRY. Thank you, Madam Chairwoman. I might just stay with where we are on that. Admiral, assuming you were at what you call "normal level," are you able to do the job that's been set out for you with all these additional restraints?

Admiral NACCARA. We can do it in a fairly capable manner, Senator——

Senator KERRY. But it's really not where you'd like to be.

Admiral NACCARA. No. That is correct. I would like to have more resources. I think our presence has been shown to have a very beneficial effect. We're doing the best that we can with our current level of resources.

Senator KERRY. That's what concerns me overall here. I mean, you're going to go through a period of reduction. I think there's a critical level of basic deterrence/enforcement oversight. If you're not capable of doing that now with the reduction, if you're really not capable of doing what we've now set out for you in all of these enlarged closed areas, then we're in trouble.

Admiral NACCARA. Yes, sir. And of course, in a multimission service we have very many competing demands for our cutters and our aircraft. Some of the zones and the areas are very challenging for us to enforce, restricted gear areas in particular. We look to simplistic forms and shapes that can be enforced relatively easily. But certainly again, the Deepwater Project, as I've mentioned, is a system of systems, which will include sensors, which certainly will help our effectiveness into the future.

Senator KERRY. Well, I want to emphasize to my colleagues that this is not just a passing comment at a hearing. I think it goes to the core of what we're trying to achieve here. There's nothing more damning to the Congress or to the public process than us passing a law—we've done it in education, we've done it in a number of areas where we say an agency has to go do something, but we don't provide the resources, and then we go through these accountability

processes, and we sit here scratching our heads, asking why isn't it working? Well, it's pretty fundamental. It brings me back to the points about consensus and information needs that were discussed I believe by both Mr. Hill and Ms. Dalton. You've just underscored that, Tom, the need to have adequate information, the need to have consensus. But if we're not structured in a way that allows us to gather that information, either through observers or through science or the process, we're sowing the seeds of either a very confusing, haphazard kind of rudimentary management where we stumble along when we get there. Or even more destructively, we develop a management plan where people lose faith in the process and its credibility. I thought I heard you say that mortality rates are two to three times what they ought to be? Is that correct? You did say that?

Ms. DALTON. Yes.

Senator KERRY. Well, isn't that the nub of this? I mean, if mortality rates are two to three times what they ought to be and we know that, but we don't have adequate enforcement, it seems to mean we're on a very dangerous slide. Do you want to address that, Tom?

Mr. HILL. I would. Thank you, Senator. I think you've made an excellent point. And I would go further by saying that we're currently realizing $40 million out of the groundfish fishery on annual revenues. I think it's an excellent question. And the reality is we're currently realizing about $40 million of revenue out of the groundfish fishery and the potential if all 13 stocks are rebuilt it's $450 to $500 million worth of revenue. So we have a long ways to go. It isn't just Gulf of Maine codfish. There are a number of other species in that species complex that need to be rebuilt. On the other hand, there are some other stocks in that species complex that are making significant recovery, the projections are pretty good.

My read is that we are not doing things from a comprehensive perspective. I agree with the Admiral's concern and your stated concern that things—we're not tying things together adequately either on analysis basis or on a resources basis to be able to say this is a holistic look at this problem, and all of the components that are necessary for success are adequately dealt with and adequately—I don't know what the right word is—but assessed and appreciated and then implemented in a manner that is consistent.

We're all doing, I suspect, the service and the Council and the Coast Guard, are doing the best that we can with the available resources. I think that it is a credit to the Coast Guard and the Council and the service that we do the best we can. But these are complex problems, and they don't get fixed easily. And because there are significant differences of opinion about things, when there is a scarcity of information or when that information is not available in a timely way, it adds to the confusion, it adds to the opportunity for those who want to take a different perspective, it calls into question the validity of what we're doing, what anybody is doing, and it adds to the discontent in the fishery, real information or not. And I believe fully that we need to have an integrated system that has real-time data. I agree with you, observers are a necessity in this fishery in order for us to be able to get a handle on what is being caught, what is being discarded, what is the com-

plex—it will help in our science efforts. It's significant. And I'm a believer in fixing problems. I think that the track record of our Council is we want to fix problems. We're making some strides. But we need to take a holistic look at this. And I agree with you, and I hope the Committee does.

Senator KERRY. Let me ask you a budget question first of all. Some people have been suggesting that the NMFS budget is increasing, and that we don't need to provide more money to the agency. People who say this argue that there's an issue with how you prioritize funds. On the other hand, I look at the budget request for this year. It's essentially a static or decreasing budget for basic resource information at a time when those resource needs, as we're hearing, are greater than ever. Why is that? What's happening here?

Ms. DALTON. We've actually seen 57 percent increases since 1994 in our budget which looks like it's a really healthy increase. Most of those resources have gone into Pacific salmon. What has happened to us is while our budget has increased, our responsibilities have also increased concurrently. The other thing that has happened is that the new money that we get tends to go for specific purposes. With the number of different lines we have in our budget, we currently have to manage our operations and research budget under 113 separate lines. And we can't move money between those different lines. As a result, what we've seen in the northeast region this year, we actually had a deficit in our spending. Where in other regions of the country things are fine and our budgets are adequate.

What we were doing to try to deal with this, because it's been a gradual problem that's developed over a period of time this year, is we've asked Ray Kammer, who is the head of NIST (National Institute of Standards and Technology) now, to do an independent budget assessment of our entire agency budget. He's putting together a team with the Coast Guard, hopefully one Coast Guard person, the chief scientist of the Canadian National Marine Fishery Service, and some of our in-house folks, to try to look at where we're spending our money and what problems we have.

Senator KERRY. When will that be available?

Ms. DALTON. He is going to try to do it within the next 60 days, so it's germane to the funding process and the appropriations process.

Senator KERRY. Are you going to share that with us?

Ms. DALTON. Sure, we'd be happy to.

Mr. HILL. And if I—I'm sorry——

Senator KERRY. Go ahead, Tom.

Mr. HILL. I would be more blunt and say that our workload in the Council dealing with the changes in the Act and the challenges that we face have gone up 100 percent, and our budget has gone up 28 percent.

Senator KERRY. How much?

Mr. HILL. 28 percent.

Senator KERRY. 28 percent.

Mr. HILL. Since the——

Senator KERRY. I thought you made a compelling argument about the number of hours and the amount of work the Council has

to do. Obviously, we don't want to just build bureaucracies, but at the same time we've got to be able to build the consensus and make good decisions.

Are there management tools that you know of in certain places in the country, or in certain countries other than ours that you think work? I mean, some people have suggested to me that some other countries are doing fishery management better than we are. I won't go into which or where, but there are examples. Are there tools that you wish you had that you don't have? And Penny, are there ways to build consensus among stakeholders that you think you could achieve, and if so, are there steps we could take to help you achieve it? Tom?

Mr. HILL. I think that there are a number of tools that are successful for given regions for very specific reasons. And the biggest reason is that the industry buys into a management methodology that achieves their goals as well as the goals of the Sustainable Fisheries Act. I must admit that I am troubled by—and this is a personal perspective—but actually the Council has gone on record in requesting that the Senate remove the moratorium on individual fisheries quotas. That's probably the only methodology that has denied the Council system in terms of looking at how we manage our resources.

Am I suggesting that our Council is going to move toward IFQs in the near future? Not at all. I just believe it is one methodology that the Council ought to have an opportunity to look at. I think community-based quotas, sector allocations and a number of other allocations which empower the participants in the fishery. Clearly, the service and the Councils are defining what the playing field is by the volume of fish that are available. We then need to empower the participants within the fishery by defining the playing field and then asking them how it is that they're going to prosecute that fishery to their best economic and social advantage.

And so in that respect, I would request that the—on the behalf of the Council or individually—that the Senate look at the moratorium on IFQs. I think that from my individual perspective that I think it is fundamental that we achieve our mortality targets and not exceed them on a regular basis. It is fundamental to success.

Senator KERRY. Admiral, you wanted to add something?

Admiral NACCARA. If I may, I'd like to pile on for just a moment here, Senator.

Excellent point you made before. And I can give you some more substantive issues within the Coast Guard. First of all, it's interesting to note that our work force in the Coast Guard is equal to that of our 1963 levels. And I can guarantee you that many new responsibilities have come to the Coast Guard since that time.

In the fiscal year 2001 President's budget there are a number of issues that I think will help in the issue just addressed. Such as some money for Vessel Monitoring Systems, the VMS system. I think there is some value in that system. It's another tool that we may use to locate vessels. Of course, we still need the at-sea enforcement capabilities, so we need the cutters and aircraft. But it could be helpful. And we need a more effective way to pass the information to our cutters. In the budget there is money to help enhance that system of interconnectivity.

There's also money in the budget for an additional 23 billets for the Coast Guard in our Fishing Vessel Safety Program. Absolutely essential for us. It helps us, of course, to rebuild our work force and focus on this issue. And of course, there are also moneys for upgrading repairs of our infrastructure and some of the critical steps with our Deepwater acquisition project.

Senator KERRY. Well, I have talked to individual fishermen who say to me that there are plenty of fish out there. I go out there and we're being restricted from this area. A lot of fish. Why don't they listen to us? We could go out there—if we were allowed to make some judgments ourselves, we could avoid the race and the trip limits. They propose that you'd wind up with less risk to fishermen's safety because they wouldn't be trundling around at sea because they can't come in to justify their catch until they've been out there for a certain amount time. So you run into the risk of being in a storm you shouldn't have been in. Isn't there a more effective way to create—I suppose you're smiling because you're going to say, yes, we have IFQs, is that right?

Mr. HILL. Well, there are more effective ways, and many of them are not popular. And it has to do with cultural and social and economic differences in the fishing industry relative to their vision of the future of the industry. And my opinion is that fisheries management is an evolutionary process. It is not a—it is not—well, this is the right answer forever. This is the right answer for today. It is the best social and economic and political, in parenthesis, conclusion that we can come to based on the interest of the industry and the public today.

I have a fundamentally singular perspective on fisheries management. I've articulated it before the Committee in the past. And I think it's really important that as a national standard that we identify controlling fishing mortality to live within our limits as being a core element of success. How we do that with the industry I think is multifaceted. It's my opinion that the Council is looking seriously at regionalizing our groundfish plan. And this is in the development of Amendment 13 where we're talking about breaking the groundfish plan up into regions, southern New England, George's Bank, and maybe in-shore and off-shore Gulf of Maine. And that will allow the industry participants to have a more narrow input on the area where they're actually fishing versus every time we amend the management plan it effects everything from the New Jersey border all the way to the Canadian border.

Senator KERRY. But this is not new. Every few years we sit here and we've tried to tweak the Act in a way or even radically change it in a way that empowers somebody to be able to break this kind of cultural resistance you're talking about. There is an evolutionary process going on. It's called "two to three times the mortality rate." And if we continue with two to three times the mortality rate, the problem's going to solve itself.

Mr. HILL. But if I could, I think that the critical component here is not to overlook the fact that the Council has been successful in many fisheries. This is the poster boy of today. Gulf of Maine codfish is the issue of the day. The fact of the matter is we've been successful with haddock, we've been successful with George's Bank yellowtail. We've been successful with gray sole. There are a num-

ber of areas where the Council has wrestled through problems, and we have been successful. The problem with Gulf of Maine codfish is that it affects almost every segment of the fishing industry. Gulf of Maine cod has the largest number of permits, the largest number of participants that catch that species either directly or as a bycatch. And it is a challenge. I believe that we will eventually wrestle it to the ground. It has profound impacts in the communities that abut the Gulf of Maine. It is a significant issue, but we are wrestling with it.

Senator KERRY. Last question before I turn to my colleague.

Ms. DALTON. Cooperative research I think is really an important way to get people to interact. That's one reason why it's such a critical thing because it brings our managers together and the scientists and the fishermen in a program where they work together and they begin to understand each other's viewpoints. So there are a lot of other things that we are trying to do. The real-time reporting, the things that they did in the scallop industry to try to maintain their discards at very low levels, they're doing that in the North Pacific now and using it to control discards of halibut and the Pacific codfish and extending the fishery. We can do those kinds of things in New England. We just have to begin that process of making people aware that those capabilities exist.

Senator KERRY. Is there a tool that you wish you had that you don't have?

Admiral NACCARA. Money.

Senator KERRY. That's it, huh?

Ms. DALTON. That's it. Great answer.

Senator KERRY. Are you familiar with the effort of Cliff Gowdy, researcher at the MIT Sea Grant Program who was trying to get permission to go out and tow two dredges on the same day in order to do a comparison with a video camera, recording operations, and he couldn't do it because NMFS wouldn't sign off on it?

Ms. KURKUL. I don't remember a lot of the specifics of it, but I generally remember the issue. And it had to do with the need to obtain an experimental fishing permit.

Senator KERRY. Correct.

Ms. KURKUL. And I think the length of time it takes to get these experimental fishing permits, and that is something we've been talking about quite a bit in the last few weeks. And we are working on streamlining that process and, in fact, talking about establishing a delegation for those permits at the regional level instead of at the headquarters level, which we believe will cut a significant amount of time off the length of time it takes right now to obtain those permits.

Senator KERRY. Well, it's not just time. I think it's sort of the sense of it. I mean, this fellow thought he was coming up with a scheme to help protect habitat, and that you folks ought to welcome that kind of effort. His quote is: "They say it takes 60 days, but there's a whole process of give and take to get a proposal up to snuff. It typically takes much longer than that, this process of getting an experimental fisheries permit is ridiculous. It allows too much authority to NMFS." If that's true, it essentially blocks whatever was intended in the original Magnuson Act and following re-

finements. The process totally discourages research by scientists, let alone by fishermen.

Ms. DALTON. We have heard similar complaints from a number of people.

Senator KERRY. Why is it so complicated, folks? I don't understand that.

Ms. DALTON. I think part of it is we have too many steps in the process right now. What happens is the region works with the people that want to do the research, goes ahead and develops a program, does a package up for a decision, and then it comes to Washington DC where people again go through a review process.

Senator KERRY. This is the kind of stuff that sends people away in despair. It drives everybody nuts, not to mention gives the entire system a lousy name. I think when somebody brings in a sound experimental fisheries proposal you ought to leap on it and say: How can we help? Is there a way to make sense out of this proposal? And if the proposal isn't going to make sense, tell them right up front and tell them why. Maybe there are too many cooks cooking this soup or something. I don't know.

I think the point is made. I think you've got to find a way to work this out as part of the process of building credibility and creating a relationship, built on common sense, with people that you're regulating. If bureaucracies get in the way, we're all going to have a hard time getting people to listen and cooperate. Thank you, Madam Chairwoman.

Senator SNOWE. Thank you, Senator. Senator Stevens.

Senator STEVENS. Penny, where do we get the mortality figures in this area?

Ms. DALTON. Our science center calculates them. If you want to explain that, Mike, or——

Senator STEVENS. Are they industry originated, or are they estimates of scientists? What are the——

Ms. DALTON. They're scientific estimates.

Senator STEVENS. They're estimates. Are those broadcast to the industry, people in the industry?

Ms. DALTON. Yes. We do a stock assessment on each of the stocks, and that's provided to the Council.

Senator STEVENS. Is this excessive bycatch, or are they discarding for size? What's the—why is the mortality rate so high?

Ms. DALTON. Well, the problem with Gulf of Maine cod has been that they have been aggregated in the primary fishing area in Massachusetts Bay. And so it's very hard to avoid them when the fishermen go out to fish. But it's one of the stocks that's in the most trouble within that whole multispecies complex, so what we've tried to do is set trip limits on it so that it discourages a directed fishery but allows regular fishing operations to go ahead and continue.

Senator STEVENS. Well, money can't solve the mortality problem.

Ms. DALTON. No.

Senator STEVENS. That's discipline.

Ms. DALTON. Yes. And figuring out effective ways to try to control the discards and reduce them.

Senator STEVENS. It's also a violation of the last Act. If you fish in an area where you're going to get an excessive amount of by-

catch, you're supposed to desist. I wonder sometimes about how much we can enforce discipline on a fishery.

Ms. DALTON. It's difficult. I know you're frustrated that we had to go through five different rulemakings last year, but we did manage to control the cod mortality last year to the amount that was in the regulation. It was at a level that I believe it stopped overfishing but it didn't provide for rebuilding. And the next step is we have to get to levels that allow us to go ahead and rebuild.

Ms. KURKUL. Part of what's happened with cod, that Tom talked about a little bit, is that there's this continual discussion about finding a balance between the different measures of the tools that are available. Trip limits do create discards. Everybody recognizes that. That was part of the whole discussion. Closed areas, on the other hand, limit opportunities. And so the goal was to find a package of measures that would to the extent practicable reduce those discards while still preserving some opportunities for the industry. And so it's this constant balancing act that's made the regulations and the situation very complex. It's a very diverse industry. And so trying to accommodate each of the regional differences has been part of the difficulty of the process.

Ms. DALTON. There's also a small boat issue.

Senator STEVENS. That's why it was my suggestion to create Councils because the Federal Government just doesn't understand every area. The Councils are supposed to understand every area.

Let me go to Mr. Hill, if I may. I went through your list of the things that you're considering, Mr. Hill, and I have great respect for Councils and the hard work that you all do. But I found strange that one of the three areas that you deferred this year were measures to address capacity in the New England fisheries. If you overcapitalize, why has that been postponed?

Mr. HILL. Because there was not a clear—well, the short answer is there was not a clear consensus on what we needed to do about it. The Council individually does not have the authority under the Act to eliminate or to control capacity other than through limited entry plans which we have implemented in various fisheries. Limited entry in New England has been historically a rather controversial issue. The character and nature of the New England fishery has been an open-access fishery and making a transition for limited entry has been profoundly controversial in some quarters.

Senator STEVENS. Well, I'm bombarded with plans that come from the North Pacific Council from various species groups of their own origination of how to deal with overcapacity. Do you have plans coming from the fisheries themselves——

Mr. HILL. No.

Senator STEVENS.—to deal with overcapacity?

Mr. HILL. Well, not specifically for capacity issues, no. We have management plans, suggestions that come from industry, but not ones that deal with capacity other than through the traditional format.

Senator STEVENS. But didn't I hear you say you had an outstanding number of permits in one fishery that's just overwhelming?

Mr. HILL. Yes, we do. That's in the groundfish fishery.

Senator STEVENS. Has the Council addressed that, what you'd like to do to get rid of those, or to limit those somehow?

Mr. HILL. Yes, we are. We are in the development, as a matter of fact, our capacity committee, is looking singularly at this time, looking at scallops and groundfish and is going to make recommendations to those subcommittees relative to a singular focus for this Amendment 13 process. And so yes, we are looking at it.

Senator STEVENS. Well, I'm going to be pursuing for the king crab fishery a concept of trying to use their CCF as a pool and, with almost a lottery system to have all the boats in the lottery, some of them are going to be retired. And hopefully, the CCF will pay for those boats, plus selling them off as recreational boats never to be used in fisheries again. Are your people thinking about things like that?

Mr. HILL. Well, I can't speak for the industry. The Council is certainly wrestling with issues of that nature, yes. That it is a—it's a—Senator, it's a complex subject, and I'm uncomfortable speaking on the behalf of the Council——

Senator STEVENS. I understand. I'm not asking you to speak for the Council. I'm just wondering if people have presented to your Council plans like they're presenting to ours.

Mr. HILL. Not to date, no, sir.

Senator STEVENS. I see. Well, I would hope we'd find some way to address capacity in fisheries nationally because we're overcapitalized very clearly in view of the way the supply is being reduced. And if you have any ideas, I'd be pleased to join others in working with you to deal with this. This is the historic fishery of the United States, and it ought to find a more fertile field for renewal and even some of the newer areas such as mine.

Mr. HILL. Senator, that's a wonderful invitation, and I will bring that back to our Council and to our executive committee——

Senator STEVENS. I think there are many ways to be—to use great ingenuity in dealing with capital—overcapitalization, and I say that as one that's always opposed to individual fisheries quotas, but I'm about ready to change my mind. It may be the only tool we have left.

Admiral, I'm a little disturbed about the statistics you have reported. I've been down to the east coast anti-drug activities out of Florida, and I was out at the area there in California at Alameda to deal with what they've got there in terms of the Pacific effort now. How much have you lost of your gear to the anti-narcotic trafficking efforts that the Coast Guard's putting forth this year? Have you lost some of your gear here?

Admiral NACCARA. I can't specifically address that, Senator. I know that we have constant competition for Coast Guard assets. I know that we've all—all of our programs have suffered in the country——

Senator STEVENS. Have you lost any cutters?

Admiral NACCARA. No, sir.

Senator STEVENS. Lost any personnel?

Admiral NACCARA. No, sir.

Senator STEVENS. Most areas have. It sounds like you believe you've had a cut of 10 percent?

Admiral NACCARA. Yes, sir, yes, sir. Ten percent of our medium endurance cutters, the primary large cutter that we use in the fisheries——

Senator STEVENS. You mean the utilization of your cutters is 10 percent?

Admiral NACCARA. Utilization, yes, sir, utilization.

Senator STEVENS. Oh, I misunderstood. I thought you said you had been cut 10 percent.

Admiral NACCARA. No, sir. Well, I've been cut 10 percent of my available usage of those cutters.

Senator STEVENS. Yes.

Admiral NACCARA. They'll remain ashore for training, for maintenance and so forth. That was the cut that I was discussing, sir.

Senator STEVENS. And has that been allocated to law enforcement, that 10 percent?

Admiral NACCARA. No, sir. No, sir. All programs have sustained a cut to their operations. All of our multimissions have sustained that cut. So it's across all missions. The cutters will be at sea 10 percent less.

Senator STEVENS. Was your budget cut that 10 percent?

Admiral NACCARA. No, sir, no, sir. We've just been trying to help to restore the readiness problem that we've noticed over the last couple of years. It's a very——

Senator STEVENS. It's a catch-up in your operations, your maintenance and your training?

Admiral NACCARA. That's precisely it, yes, sir. It's a very difficult cultural change for us, but that is something we felt necessary.

Senator STEVENS. Last question: What do you think of the GMS (sic) system?

Admiral NACCARA. The VMS system, sir? The vessel monitoring system?

Senator STEVENS. What is GMS?

Admiral NACCARA. Vessel——

Senator STEVENS. VMS, pardon me.

Admiral NACCARA. Yes, sir.

Senator STEVENS. A little trouble hearing up here. VMS. What do you think of that?

Admiral NACCARA. I think it's a valuable tool for helping us to determine position of vessels. Right now we've only been using it on the scallop fleets, so it's got limited applicability for us.

Senator STEVENS. And you would mandate all vessels in the fishery to have that?

Admiral NACCARA. I think in the long run it would be very valuable in that way, yes, sir. We need an enhanced Command and Control Communication Capability with the VMS systems, so I can get that information to our cutters right away.

Senator STEVENS. Who can tell me what the on-vessel cost for the VMS system is for the fishermen?

Ms. DALTON. Right now, it's a few thousand dollars.

Senator STEVENS. I can't hear you, Penny.

Ms. DALTON. I think it is about $2,000 or $3,000. It may be more than that.

Ms. KURKUL. It depends on the system.

Senator STEVENS. There's people back there raising five fingers.

Ms. DALTON. Okay.

Ms. KURKUL. The system——

Senator STEVENS. It's nice to be in Boston where they wave at me with all five fingers.

(Laughter.)

Ms. KURKUL. The system that is being used on the scallop fleet is about five or $6,000 to install the system. There are other systems available in use in other parts of the country.

Senator STEVENS. What does it cost the government?

Ms. KURKUL. There is no cost to the government for the scallop fishery.

Senator STEVENS. You have to monitor——

Ms. KURKUL. Yes, I'm sorry. The in-house capability to monitor the system as well as compile the data and make the data available is fairly significant.

Senator STEVENS. What's holding that up? How much? You requested money this year?

Ms. DALTON. Yes. We have an increase for it, and we do have money in our budget this year for it. We just did a contract with Volpe, the transportation group, and they're going to be setting up a national VMS system for us. And they think that they'll be able to handle I think up to 10,000 vessels in that system. So we have a couple systems. There's one for mackerel. There's one in the Western Pacific for the long lines.

Senator STEVENS. This is the beeper system satellite to monitor——

Ms. DALTON. It would be. You can monitor. It also has some capabilities. You can tie it in with communications. We've also been looking at the possibility of tying it in with electronic log books.

Senator STEVENS. And is it GPS integrated?

Ms. DALTON. I think so.

Senator STEVENS. I see. Okay. Thank you very much, Madam Chairwoman.

Senator SNOWE. Thank you, Senator Stevens. I know we have to go on to the next panel, but I just wanted to ask you, Ms. Dalton, have you had a chance to review the GAO report that was released last week?

Ms. DALTON. I read it on the plane.

Senator SNOWE. You read it on the plane, great. I certainly want a response from you with respect to a number of the issues. One of the major issues, of course, is how to utilize and incorporate the socioeconomic impact when making these decisions. GAO has said that this decision is not incorporated at the outset of the NMFS decision-making process. The impact is identified, but we don't identify ways to minimize it. Do you have any ideas about how we can restructure the decision-making process within the agency?

Ms. DALTON. There are two different things. One is that we have, again, requested additional funding to go ahead and do, collect, establish data bases and do some of the economic analysis. We have a $3.5 million increase in our budget for it this year. Thus far, the increase that we had for last year of $1 million was not funded. So that's one of the things that we need to do.

In addition to that, we've been working on revamping our guidelines because we recognize the same thing as GAO did. Particularly in some of the litigation these kinds of issues have come up.

So we're trying to revise our guidelines for both the Councils and for our own internal reviews to move things up in the process. We had hoped to have those guidelines redone.

Senator SNOWE. What's the timeframe?

Ms. DALTON. What?

Senator SNOWE. What's the timeframe?

Ms. DALTON. The timeframe is probably this summer, because it requires more analysis.

Senator SNOWE. I just think that one of the things against the agency is time, time, time, time. We really need to move this process forward. I think that is one of our critical challenges. The decision-making process is too open-ended. Let's get back to groundfish. Many livelihoods depend on the fishery. The requirements have been in the Act since 1996, so this is not a new discovery. The agency needs to focus on getting this done. It is very critical, which is why we had the GAO conduct this study. We realized it wasn't being incorporated in the agency's decision-making.

As in the groundfish industry, there is not an isolated decision. There are many, and we have to weigh all of them. The agency has to give a sense of urgency to these issues. In your statement you said that, "A great deal of work remains to be done with respect to the SFA requirements. We are laying a better foundation for future fisheries management, yet the benefits of the changes made by Congress will take years, perhaps decades to realize."

I don't want this to be a lethargic process. Focus on the key issues that will make a difference. We need the agency's commitment. To use the national standards, the best science, and the amount of money we're going to need for research, we have to decide that these are the key issues to focus on. I want to use this reauthorization process to identify the key issues. Otherwise, we're just going to continue to go in circles.

I would hope that in the next few months we can get an idea of how that's going to be incorporated. The GAO made some very constructive suggestions, and I think we ought to try to review those. I hope that in the final analysis, we realize that it's going to take an enormous commitment to make sure this process moves forward in a way that affects people's lives today. We have to make those decisions now.

Mr. Hill, one other suggestion: In talking to a number of people about the Council process, I know there are a number of advisory panels within the New England Council. How do you incorporate their decisions? Are there standard operating procedures that could be used, or established, so that people who do the work on those subcommittees see the results of their work?

Mr. HILL. Well, the advisory panels for the Council are established for each species committee. And the species committee utilizes the advisory panels for responding to areas where the industry has greater expertise than the committee itself. And that's been the traditional role where we seek advice from the advisors. The advisors often then meet concurrently with the oversight committee. During the presentation before the Council, the oversight

committee and the chairman of the advisory committee often give them before the Council before we act on a given item. In the multispecies plan, and the groundfish plan, we're actually taking a fundamentally different tact with the advisors in this upcoming amendment process. And we've integrated the advisors into the development teams that are developing options for the Council's consideration. I suspect that the advisory process is either supported or disliked depending on whether, in fact, the committee or the Council does what it is that this particular segment of the advisory panel may want. On the other hand, why the advisory process is critical to the Council's development of management plans because the industry often has expertise that the committee or the Council does not, my read is that there is a balancing act between the types of things—the advice we seek from the advisors and our willingness to take that advice. It certainly is not a simple equation. There are many areas, policy areas of biological issues that are not appropriate to seek input or advice from advisors. On the other hand, the impacts of various regulations and/or corresponding different regulations and how that will impact mortality, gear changes, areas fished or not fished. Why that kind of input is the area where the Council seeks that input.

And in fact, we've had industry groups over the years that have provided us with management options wholly that we have sent through our analysis process and have made suggestions back to the industry on how to improve them. And in fact, many of the plans that we have implemented have had significant industry input. Unfortunately, as is in legislation, why you generally end up with a modified version of a proposal and often times why that doesn't meet with the full concurrence of those who had authored the recommendations to begin with. It's an iterative process, and no management plan that I am familiar with is ever fully supported by everybody that is involved. There are a number of compromises that come forward, and it's from that perspective that the industry and the Council need to work on the most.

Senator SNOWE. There's no standard for them to be incorporated in the same way in the decision-making process.

Mr. HILL. Well, I would say that the standard has been that the industry advisory panels meet regularly with the committee, and at times are charged specifically by the committee with answering specific questions that are posed to it. And I believe there is a standard. We are now trying a different model in this upcoming amendment process groundfish, but I would say, for instance, in scallops, the industry advisory panel meets the day before our scallop committee meeting, and then concurrently with the committee at times, and their advice is incorporated into the decision-making process, and in fact, that has been a very successful model. The process is used in other species committees where more or less effectiveness, depending on the nature of the policy issue that's being wrestled with.

Now, that's been the methodology. Think it's been a modestly effective one. We're looking for ways of improving that. And we are taking a different model here in the groundfish development of Amendment 13 trying to have the industry being involved from day one on the development of all of the various options that will come

to the Council. We hope that will improve the communication level between the industry and the Council. I will tell you that I'm committed to improving that process in areas where it has not been successful. It's one of the various things I touched on in talking to Council members prior to my election.

Senator SNOWE. Okay. Thank you all very much. We appreciate——

Senator KERRY. One quick question——

Senator SNOWE. Yes, you may.

Senator KERRY. One quick question to the Admiral. No, no, no, because I know we want to move on to the next panel.

And also, the record will remain open?

Senator SNOWE. Yes. The record will remain open for additional questions and comments.

Senator KERRY. We'll submit something to you in writing.

But just very quickly: I appreciate what you were saying about Operation Safe Catch, and obviously you're committed to the safety of fishermen in every way, but some news reports recently have focused on what I mentioned earlier about the trip limits issue, and the trip limits sort of forcing some fishermen to remain at sea. Obviously sometime in the winter, particularly with the cost of fuel now, it seems that you've got two problems. One is the risk of being at sea when you don't want them to be. And secondly, it doesn't further conservation goals to have them out there burning fuel when they don't need to be. Is there some way to achieve your goal with respect to the enforcement regulations and compliance but still flexible enough to increase the safety of fishermen? Does this situation raise the question of the IFQ program, and what's your attitude about it?

Admiral NACCARA. It's a little bit out of our realm there, Senator. But I would say up front that the Coast Guard would never encourage to remain at sea when bad weather is approaching. I think reason must prevail. We don't enforce the trip limits at sea. That enforcement is conducted at the dock, of course. I feel that we've had a positive example over the last couple of months, in which fishermen had come ashore, perhaps exceeding their trip limits, and through arrangements, through some kind of a compromise between the Coast Guard and National Marine Fisheries and the fishermen, they were allowed to come ashore. I think some of the catch was put in escrow, and I think safety prevailed and good logic and reason prevailed. That may be necessary on a case-by-case basis. I think working together we can establish the proper standards and apply reason to those. I think that we're very willing to work together into the future. And that's as much as we can hope for.

Ms. KURKUL. Senator, may I also respond? As a result of the issues that have been raised around this issue of safety and the trip limits, we have convened a meeting that will include the Coast Guard, the Council, our office of law enforcement, our NOAA office of General Council as well as the fishing industry to discuss some of these issues. It's scheduled for this Wednesday.

Senator KERRY. When will that be? This Wednesday?

Ms. KURKUL. This Wednesday.

Senator KERRY. Oh, well that's good. All right. Thank you very much. Thank you, Madam Chairwoman.

Senator SNOWE. Thank you, Senator Kerry. Senator Stevens, any final comments? No. Thank you all very much.

We'll now proceed with the second panel witnesses. Our first witness will be Mr. Russell Sherman, treasurer of the Gulf of Maine Fishermen's Alliance, followed by Paul Parker of the Cape Cod Commercial Fishermen's Association; Rip Cunningham, publisher of the magazine, Salt Water Sportsman; Peter Weiss, president of the General Category Tuna Association; and Angela Sanfilippo, president of the Gloucester Fishermen's Wives Association.

We thank all of you for being here today. I'd like to remind witnesses to limit their statement to five minutes, and we'll place your full written testimony in the record.

Mr. Sherman, we'll start with you.

STATEMENT OF RUSSELL SHERMAN, TREASURER, GULF OF MAINE FISHERMEN'S ALLIANCE

Mr. SHERMAN. Madam Chair and members of the Committee, I would like to thank you for the opportunity to address you regarding the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act.

I've been a commercial fisherman for 29 years, fishing primarily out of the port of Gloucester, Massachusetts, but also from ports in Alaska, Maine and Virginia. As a commercial fisherman and vessel owner, I have a vested interest in the future of a viable commercial fishery and understand and respect the need for effective conservation and management. I am the treasurer and a director of the Gulf of Maine Fishermen's Alliance. This group of fishermen representing vessel owners and crew who fish in the Gulf of Maine and surrounding waters seeks to ensure that regulations are effective and sensible and treat fishermen fairly and equally. The Gulf of Maine Fishermen's Alliance and I have been involved for a number of years in the effort to implement management measures that attain conservation objectives without unreasonably burdening those who access the resource.

As the owner of an in-shore vessel currently unable to fish due to extensive and lengthy in-shore closures, I believe that I have also experienced and suffered through one of the most dismal failures in the management process. With increasingly stringent rebuilding measures mandated by the SFA and reduced involvement of fishermen the management process has turned into an allocation battle. With the winners being special interest groups represented by well-funded lobbyists able to garner support or who are actual members of the New England Fishery Management Council. As a result, small owner-operated vessels from small fishery-dependent coastal communities are being forced out of the industry.

Effective conservation measures must be sensible and practical and derive their authority from the consent of those governed and affected. Rules must be fair and equitable and take into account variations between fisheries. While the Magnuson Act appears to provide many of the safeguards for small businesses, particularly in the National Standards Four, Six and Eight, we believe that the National Marine Fisheries Service has been infective in ensuring

that those standards are properly applied. In many instances, I believe that the shortcomings of the present Act result not from problems in the Act itself but from improper interpretation or ineffective implementation of existing provisions.

While all fishermen understand that the long-term goal of the Act is to sustain a viable fishery, we do not believe that Congress' intent is to sacrifice fishermen's lives nor their livelihoods merely to hasten a recovery. Nor do we think Congress' intent is to eliminate small businesses like mine.

In making my comments, therefore, while addressing the need to revisions to the Act as presently drafted, I will also address the problems we presently see in the Act's interpretation which might in some respects be corrected through clarification of the Congressional intent. The views expressed here reflect my opinions and represent the consensus of the Gulf of Maine Fishermen's Alliance. Congress must give more guidance in prioritizing the national standards and require that a balance is struck between them. Every time that we ask for a balance to be struck between conservation and the economic interests of the communities, we are told that the fish come first. We do not believe that Congress really intended this. Managers should have the flexibility to coordinate management of interrelated stocks or manage them as one. All species cannot be built to their historic levels at one time.

National Marine Fisheries Service must be compelled to enforce all of the national standards and correct Council abuses. The inshore fleet is currently bearing the entire burden of conservation for codfish in the Gulf of Maine. The ban on ITQs should be continued and any quotas distributed equally among fishermen. Let us not give one group the opportunity to receive everything.

Any latent effort buy-back should be made and should be made entirely voluntarily. Congress should encourage community and area-based management. Regional management will encourage more responsible fishing and more involvement of fishermen in the process.

Real-time data is badly needed. At present we are making annual adjustments and amending plans on a few month's data or data that is presently years out of date.

Cooperative research and management are vital to the success of management plans and the Federal Government is not doing enough to promote these efforts. Fishermen have been begging for inclusion into the science process.

No more regulatory discards. All fish which cannot be released alive should be landed, even if the proceeds from them are given out to charity.

Council procedures benefit special interests and undermining fishermen's confidence in management and the Democratic process. We want industry people on the Council. No more lobbyists or paid representatives on the Council.

Limitations must be placed on the scope of Council action particularly in the abbreviated rulemaking process known as the "framework." The Council is presently allocating more through frameworks than through full amendments.

The constant changes in overfishing definitions, stock rebuilding definitions and management objectives must stop. Just once let us

try to give a plan time enough to work. While enforcement is crucial, fishermen remain citizens, harvesting food for America, and the government must stop treating us like criminals and respect our constitutional rights.

Judicial review of management measures should be made easier or all plans, amendments and frameworks should automatically be sent for review to another government agency, perhaps the SBA. Consideration should be given to removing management oversight from NOAA. Science should be objectively performed without input from policymakers.

In conclusion, Madam Chair and distinguished participants, I believe that the Magnuson Act has great potential for maintaining a healthy and sustainable fishery. Congress must, however, ensure that the national standards are enforced and establish priorities so that managers achieve a balance between biological objectives and the need of those dependent upon the resource. More importantly, Congress must reverse the trends seen on the New England Fishery Management Council that allow special interest to allocate to themselves or their constituents disproportionate access to the resources at the expense of others. The Act as written appears to provide many of these protections if only the National Marine Fisheries Service would enforce them by refusing to implement Council recommendations which do not comply with the law. Unless and until fishermen are treated fairly and equally, the industry will remain in turmoil and management of their objectives will fall far short of their goals. American fishermen have a long and proud heritage bringing food to these shores for over 375 years. While the desire of government to change the way we fish by requiring MSY and every species is admirable, it may well be impossible.

We need to ensure that goals are realistic and management plans workable. While I may not agree with all that the government is trying to do, I can accept the cutbacks, tie-up periods, closed areas, inconvenience and personal loss resulting from these management measures but only if I am treated fairly, equally and with the respect that America fishermen deserve. I ask you then to restore to the Magnuson Act the most basic principles of fairness, equity and equality, not just in words, but in the actions of the government and to restrain the abuses of the Council process which threaten to undermine these Democratic principles. I thank you for this opportunity to speak.

[The prepared statement of Mr. Sherman follows:]

PREPARED STATEMENT OF RUSSELL SHERMAN, TREASURER,
GULF OF MAINE FISHERMEN'S ALLIANCE

I. Introduction

Madame Chair and members of the Committee, I would like to thank you for the opportunity to address you regarding the re-authorization of the Magnuson-Stevens Fishery Conservation and Management Act. I have been a commercial fisherman for 29 years, fishing primarily out of the port of Gloucester, Massachusetts, and also from Alaska, Maine and Virginia. As a commercial fisherman and vessel owner, I have a vested interest in the future of a viable commercial fishery and understand and respect the need for effective conservation and management. I am the Treasurer and a Director of the Gulf of Maine Fishermen's Alliance. This group of fishermen, representing vessel owners and crew who fish in the Gulf of Maine and surrounding waters seeks to ensure that regulations are effective and sensible and treat fishermen fairly and equally. The Gulf of Maine Fishermen's Alliance and I have been

involved for a number of years in the effort to implement management measures that attain conservation objectives, without unreasonably burdening those who access the resource. As the owner of an inshore vessel currently unable to fish due to extensive and lengthy inshore closures, I believe I have also experienced and suffered through one of the most dismal failures of the management process. With increasingly stringent rebuilding measures mandated by the Sustainable Fisheries Act, and reduced involvement of fishermen, the management process has turned into an allocation fight, with the winners being special interest groups, represented by well funded lobbyists able to garner support on, or who are actually members of, the New England Fishery Management Council. As a result, small owner operated vessels, from small fishery dependent coastal communities are forced out of the industry.

Effective conservation measures must be sensible and practical and derive their authority from the consent of those governed and affected. Rules must be fair and equitable, and take into account variations between fisheries. While the Magnuson Act appears to provide many of the safeguards for small businesses, particularly in National Standards four, six and eight, we believe that the National Marine Fisheries Service has been ineffective in ensuring that those standards are properly applied. In many instances, I believe that the shortcomings of the present Act result not from problems in the Act itself, but from improper interpretation or ineffective implementation of existing provisions. While all fishermen understand that the long-term goal of the Act is to sustain a viable fishery, we do not believe that Congress' intent is to sacrifice fishermen's lives or livelihoods merely to hasten a recovery. Nor do we think Congress' intent is to eliminate small businesses like mine.

In making my comments therefore, while addressing the need for revisions to the Act as presently drafted, I will also address the problems we presently see in the Act's interpretation, which might in some respects be corrected, through clarification of Congressional intent. The views expressed herein reflect my opinions, and represent the consensus of the Gulf of Maine Fishermen's Alliance

II. Congress Must Give More Guidance in Prioritizing the National Standards and Require that a Balance is Struck Between Them

Congress should provide some guidance to the Administration as to the priority to be given each National Standard. As fishermen, we are often confronted with the statement that conservation goals set forth in National Standard One override all others. As a result, I believe managers are too quick to reject industry alternatives that might come close to conservation goals, but which would significantly reduce the burden on fishermen and harm to their communities. We do not believe that this was Congress' intent. Managers must balance competing issues such as health of stocks with the health of fishery dependent communities, fairness and equity and safety at sea. If a slight delay in rebuilding will permit a community to survive or promote equity or safety, then every attempt should be made to delay rebuilding as long as this does not affect the long term viability of a stock. Plans should be flexible to permit some re-direction, or to avoid cumulative effects of competing plans from suddenly increasing the burden on fishermen who engage in a number of fisheries.

The present National Standards require consideration of the effect of fishermen based on each individual plan or action. As a multispecies fisherman, I am subjected to a number of management plans, each with its own set of rules and limitations. Although considered a groundfisherman, I am also severely impacted by the Lobster Plan, the Monkfish Plan and the Dogfish Plan. For example, at the same time inshore multispecies vessels are suffering from draconian restrictions in the cod fishery, which deprive many of us access to other species such as flounder and pollock, we are now required to discard many of the lobster we previously landed; many others are required to discard monkfish; and the dogfish fishery appears to be at an end for all practical purposes. Nowhere has the cumulative effect of these plans been evaluated. I can tell you that the value of any fish that the regulations require me to discard represents a pure loss of profit—without any conservation benefit. The cumulative effect of all plans, including their regulatory burden, must be determined.

III. Managers Should Have the Flexibility to Coordinate Management of Interrelated Stocks or Manage Them as One

At present, stocks are managed on a species by species basis, with stock biomass targets set forth for each species based on their historical levels. We, as fishermen, know that the peak levels of fish never occur at the same time. Scientists tell us that the biomass of the ocean actually remains fairly constant, with the balance between species changing. Thus, not every species can be rebuilt to its maximum po-

tential at the same time, as presently required under the Magnuson Act. Scientists have told us that the present management structure is doomed to failure because the ocean can never hold all of the species at the biomass level necessary for them to provide the maximum sustainable yield (BMSY). We are doomed to a perpetual rebuilding phase. The Act must be amended to permit managers to look at interrelated species to determine what the overall stock size should be, and the appropriate mix, and not base management decisions on inflexible and unattainable goals. Management on a "fishery by fishery" and not a "species by species" basis will allow combined trip limits and reduce discards, thereby maximizing return from the fishery. Congress should also permit managers the flexibility to rebuild predators and prey at reasonable levels that make biological sense rather than to adhere to arbitrary rebuilding targets which accelerate the rebuilding of both predators and prey simultaneously.

IV. NMFS Must Be Compelled to Enforce All of the National Standards and Correct Council Abuses

As a small businessman, I expect NMFS to ensure that National Standards, in particular those governing fairness and equity and community issues, will be enforced. In the past, our former regional Director, Dr. Rosenberg was not afraid to tell the Council their proposed actions were unfair to one or more sectors, or to reverse unfair Council actions. NMFS must actively ensure that the little guy does not become the victim of larger special interests as they try to avoid their burden of conservation and gain further advantage. Congress should ensure that those who bear the burden of conservation are still around to benefit from the result.

V. The Ban on ITQs Should Be Continued, and Any "Quotas" Distributed Equally Among Fishermen

I am generally opposed to any management scheme that privatizes and allows a few individuals to accumulate exclusive rights to the resource. I support a continued ban on the development of Individual Transferable Quotas (ITQs).

I think that individual fishing quotas ("IFQs"), which are non-transferable, might be considered a useful management tool, as long as they are fairly and equitably distributed. Quotas should not be carried from year to year, but available for use only in the year allocated. Recent proposals for quota allocation raise serious questions as to fairness. I do not believe that any individual quota should be directly correlated to an individual's past fishing history. This merely rewards those who have had the greatest impact on the resource, at the expense of those who have either voluntarily reduced their effort, or been forced to do so by the unevenly distributed burden of conservation. If any individual quotas are to be implemented, everyone should be given an equal share.

VI. Any Latent Effort Buy Back Should Be Entirely Voluntary

Although most fishermen understand the problem with so-called latent effort, at the same time we realize that it is unfair to deny access to the resource to those who have voluntarily reduced effort in some or all fisheries. Any restriction on latent effort should be carefully reviewed and any buyback should be voluntary.

VII. Congress Should Encourage Community and Area Based Management

I strongly favor the development of regional fishery plans with local management. Under Magnuson as presently drafted, stocks must be managed as a unit throughout their range. This leads to situations where some fishermen are free to overfish in area after area. Managers should have the option of dividing areas into regional management blocks, with separate sub-TACs. Fishermen signing into these areas would then be limited to a region for a fishing year. I believe this would be more equitable and encourage more responsible fishing. It would force fishermen to work more cooperatively with each other and with managers to achieve a common goal.

VIII. Real Time Data is Badly Needed

A continual problem is that of obtaining timely data. Scientific sampling and analysis is months or years behind. Management decisions are routinely adjusted or altered with less than a year's data. Nowhere has this been more dramatic than in the cod fishery, where large movements of codfish have resulted in accelerated catch rates. With a restrictive trip limit, the result is frequent discard. Scientists must be able to correlate fishermen and observers' data on a real time basis to ensure that decisions are made not on the "best available data" but rather on meaningful data. Stock assessments should be performed more regularly, and daily catches and catch rates should be analyzed to detect trends between full assessments. This could be accomplished through use of industry trawl data, possibly collected through electronic logbooks.

IX. Cooperative Research and Management Are Vital to Success of Management Plans, and the Federal Government is Not Doing Enough to Promote These Efforts

As fishermen, we possess special knowledge regarding the fish, their habits and the health of stocks, which I often think scientists lack. Fishermen are by their very nature assessors of the stocks, and followers of migratory patterns. Too often scientists contest fishermen's claims about quantities of fish being seen or caught, fish migration, spawning habits, etc. We frequently invite the scientists and managers to come aboard our vessels to experience what we see, but are turned down. As a result, there has been an almost complete loss of trust between fishermen and managers. I believe fishermen need a closer working relationship with both scientists and managers, so they can understand what occurs on the ocean, both in terms of stocks and how we conduct our fisheries. We can tell scientists more than their computer models can about the subtle changes in the environment that can be discovered by daily observation. I have tried to become involved in the stock assessment process, but find I am often frustrated by the failure of managers to take seriously my involvement. For example, a Council staffer invited me to participate in a stock assessment workshop, but only notified me of the time and place less than a day before the meeting, which was in a location far from my home. I encourage Congress to mandate the Administration to involve fishermen in the entire scientific process.

Despite many attempts to develop innovative conservation methods through gear modification, etc., managers routinely reject fishermen's experience as "anecdotal" information, not worthy of consideration in management decisions. As fishermen we have spent years learning how gear works, and what it can and can't do. We need to develop new methods of protecting juvenile fish and non-target species. This can best be done with the fishermen's knowledge of gear. There has been a strong push by state officials, such as the Massachusetts Fishery Recovery Commission initiative to involve fishermen in the gathering of data and development of new gear, etc. The federal government has been slow to follow the lead, despite calls for industry involvement at all other levels. Even the recent peer review of the Northeast Multispecies Stock assessment process performed by the National Academy of Sciences called for increased industry involvement. Unless and until fishermen are involved in the process, trust will never be re-established between fishermen and regulators.

X. Present Plans Encourage Wasteful Discards of Bycatch—all Fish Which Can Not Be Released Alive Should Be Landed, Even if it is Given to Charity

Present plans do little to discourage or prevent bycatch despite the existing National Standards. Nowhere is this more evident than in the Gulf of Maine cod fishery, where managers have closed coastal fishing areas to protect cod, including areas where fishermen have traditionally caught other species such as pollock and flounder. Vessels are bunched so closely together to make a day's pay that they can not maneuver or relocate to avoid massive influxes of codfish. All plans should provide for sufficient opportunity for vessels to avoid aggregations of critical species, while permitting maximum flexibility for fishermen to earn a living. All plans should also provide a mechanism to permit vessels to land all that they catch with combined trip limits, and any excess over trip limits should be donated to charity. No fish should go to waste merely because regulators find it more convenient to mandate discard.

XI. Council Procedures Benefit Special Interests and are Undermining Fishermen's Confidence in Management and the Democratic Process

The Council process must be reviewed to ensure that affected fishermen can be involved in making the decisions that affect their lives. In the Northeast region, we have a multitude of interrelated fisheries, prosecuted by fishermen from different ports, using different gears and methods of fishing. The result is that given the small number of Council seats, many fishermen are under-represented, or not represented at all. Council members are often paid lobbyists, not individuals merely economically dependent on fisheries for their livelihood. As such, they are paid based on how they vote. This results in less than objective consideration of a "competitor's" position, and in cabals among Council members to promote the interests of their collective clients. Paid lobbyists, whether they represent fishing interests or other groups should have no place on the Council.

The problem with special interests on the Council is made worse by the Administration's failure to ensure that management measures are fair and equitable or to otherwise apply the existing National Standards to prevent abuse of the Council process. In many instances Council action is not merely a conservation tool. The first rule in fishery management has always been "shut down everyone but me" and

Council action, unchecked by the Administration, becomes nothing more than an allocation battle, where a few special interests hold all of the cards.

Recent developments on the New England Fishery Management Council raise even more serious questions as to the continued involvement of fishermen in the management process. While the Magnuson Act mandates public hearings, recent changes in New England Fishery Management Council policies prohibit many from speaking at the Council hearings, relegating public comment to subcommittees. While this may streamline the Council process, it does so at the cost of democracy. These new policies makes it virtually impossible for fishermen to promote plans or ideas, as they must now go though a completely separate culling process, before they can even approach the Council. Congress should make clear that the Council must abide by all public notice and public comment provisions of the Act.

XII. Limitations Must Be Placed on the Scope of Council Action, Particularly in Abbreviated Rulemaking Known as the Framework Process

As a small businessman it is very difficult to continually attend meetings to determine what action may affect me. When Amendments Five and Seven to the Northeast Multispecies Fishery Management Plan were formulated, it was believed these would control our fishery for years. These measures relied on an even distribution of the burden of conservation. Recent frameworks have dramatically and disproportionately affected our inshore fishery, far beyond that which we could have anticipated under the FMP or the subsequent amendments. Councils should not be permitted to allocate through frameworks, or to make drastic adjustments to rebuilding goals without a full amendment process. Congress should place limits on the extent to which abbreviated rulemaking can affect catches particularly where they result in significant allocation. Perhaps a maximum change of 10 percent, in an allocation or in landings in any one fishery, would be an appropriate limit on the scope of a framework.

XIII. The Constant Changes in Overfishing Definitions, Stock Rebuilding Definitions and Management Objectives Must Stop

As fishermen, changing "overfishing" definitions continually confound us. Stocks become "overfished" not due to a decline in fish nor an increases in fishing effort, but merely because a definition is changed. As fishermen it is difficult for us to understand how, when measures meet or approach their objectives and we see more fish, NMFS is always calling for additional restrictions. Each time we believe that we are closing in on a management objective, we are informed that Congress has changed the goal, "raised the bar," so to speak, and that therefore we must again suffer. In the face of increasing conservation targets, industry plans always come up short.[1] Public perception of fishermen and the government is also negatively affected by this apparent failure to meet objectives. We need to set goals and meet them, or at least follow one course of action long enough to see if anything we are doing is having any positive effect.

XIV. While Enforcement is Crucial, Fishermen Remain Citizens, Harvesting Food for America, and the Government Must Stop Treating Us Like Criminals and Respect Our Rights

While most fishermen recognize and respect that the rules must be obeyed and violators punished the present manner and level of enforcement has turned the fishing dock into a virtual police state. We all suffer when fishermen violate the regulations, but the present atmosphere of daily boardings and daily dockside interrogations is too much. The ability to seize and hold a catch without a hearing gives the government too much power. In recent months a number of vessels have had catches seized and the proceeds of sale held for months without any action by the government. In one recent case, the Coast Guard escorted a boat from George's Banks to Gloucester, where the catch was seized and sold. Months later, the Coast Guard admitted that they had made a mistake and returned the monies without

[1] In a recent case, managers added a new twist, applying goals not part of the rulemaking process. In the recent groundfish annual adjustment, the New England Fishery Management Council staff indicated a Gulf of Maine Fishermen's Alliance groundfish proposal did not meet marine mammal objectives, but came close to meeting biological objectives, and would have had the most positive effect on communities of any alternative. Marine mammal issues had never been discussed at the Council level or made a goal in the framework process. Sadly, the staffers failed to realize that due to present closures, fixed gear, the largest alleged threat to large marine mammals, has increased in areas closed to groundfishing. The Alliance's proposed reopening of those areas would have reduced the potential for interaction. Had the matter been discussed openly, the obvious error would have been realized. However, Council staff has never been receptive to industry proposals, and at times it almost seems as if they conceal from us the true goal until it is too late for us to adjust our plans.

further compensation to captain or crew. Because of the civil nature of the seizures, the lawyers have a new joke—"What's the difference between an American fisherman and a foreign drug runner?—The drug runner has constitutional rights."

Having been rescued by a Coast Guard vessel[2] after 14 hours in the water, during which time two other men died, I will always respect the men who put their lives on the line for us. It is unfortunate that present regulations make us adversaries, and I believe that the Coast Guard's role in fisheries enforcement needs to be reexamined.

Fishermen are engaged in the most dangerous, and probably the oldest profession in America. We risk our lives every day to put food on the tables of our fellow citizens, yet even when in full compliance with the law, we are treated with less respect by law enforcement agencies than common criminals. The situation is unfair and demeaning. As American citizens, we believe we deserve better treatment.

XV. Judicial Review of Management Measures Should Be Made Easier, or All Plans, Amendments and Frameworks, Should Automatically Be Sent for Review to Other Agencies, Such as the SBA

Under present law, management measures promulgated under the Magnuson Act are subject to only limited judicial review. Challenges to management measures must be brought within thirty days of promulgation, and preliminary relief is unavailable. Regulatory change is frequent and often dramatic, and regulations often run their course in a short period. Fishermen, irreparably harmed by improper action are thus deprived of any remedy at law. Congress should provide for an even more expeditious hearing process than presently exists, or alternatively, remove the anti-injunction provisions contained in Magnuson.

Another solution could be to submit all FMPs, Amendments and Frameworks to another agency, such as the SBA, for review of compliance with the National Standards. This reviewing agency could screen regulations and comments, and reduce or prevent disputes resulting in litigation.

XVI. Consideration Should Be Given to Removing Management Oversight from NOAA

Congress should consider whether NOAA and NMFS are actually the appropriate entities to manage the fisheries. We are concerned that too often policy decisions may infect the science. We believe that Congress should investigate placing control over management of fishermen and stocks under another agency, such as Interior or Agriculture, with NOAA and NMFS continuing with the scientific analysis only.

XVII. Conclusion

I believe that the Magnuson Act has great potential for maintaining a healthy and sustainable fishery. Congress must, however, ensure that the National Standards are enforced, and establish priorities so that managers achieve a balance between the biological objectives and the needs of those dependent on the resource. More importantly, Congress must reverse the trend seen on the New England Fishery Management Council that allows special interests to allocate to themselves, or their constituents, disproportionate access to the resource, at the expenses of others. The Act as written appears to provide many of these protections, if only the National Marine Fisheries Service would enforce them by refusing to implement Council recommendations which do not comply with the law. Unless and until all fishermen are treated fairly and equally, the industry will remain in turmoil and management objectives will fall short of their goals.

American fishermen have a long and proud heritage, bringing food to American shores for over 375 years. While the desire of government to change the way we fish, by requiring MSY in every species is admirable it may be impossible. We need to ensure goals are realistic and management plans workable. As fishermen we know more about how fisheries function and how to manage fishermen. While I may not agree with all that the government is trying to do, I can accept the cutbacks, tie up periods, closed areas, inconvenience and personal loss resulting from management measures, but only if I am treated fairly, equally and with the respect American fishermen deserve. I ask you then, to restore to the Magnuson Act the most basic principals of fairness, equity and equality, not just in words, but in the actions of the government and to restrain the abuses of the Council process which threaten to undermine these democratic principles.

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[2]At that time under the command of Paul Howard, current Executive Director of the New England Fishery Management Council.

Senator SNOWE. Thank you very much, Mr. Sherman.
Mr. Parker.

STATEMENT OF PAUL PARKER, EXECUTIVE DIRECTOR, CAPE COD COMMERCIAL HOOK FISHERMEN'S ASSOCIATION

Mr. PARKER. Madam Chair and members of the Subcommittee, thank you for inviting me to testify.

I am Paul Parker, a commercial hook and line fisherman aboard the fishing vessel PEGGY B II from the port of Wychmere Harbor in Harwich, Mass. I also serve as the Executive Director of the Cape Cod Commercial Hook Fishermen's Association and as a member of the Board of Advisors of the Marine Fish Conservation Network. As an active participant in the New England Fishery Management Council process I also serve on the groundfish and habitat advisory panels.

Founded in 1993, the Cape Cod Commercial Hook Fishermen's Association is a community-based organization of over 800 members including commercial fishermen and concerned coastal residents who want to ensure that New Englanders have a healthy and productive fishery for the future.

The Marine Fish Conservation Network is a unique coalition of over 90 national and regional environmental organizations, commercial and recreational fishing groups, and marine science groups dedicated to conserving marine fish and promoting their long-term sustainability. Over the past year, the hook fishermen's association has been active within the Marine Fish Conservation Network in developing the Magnuson Act reauthorization. The majority of the network's reauthorization agenda is contained in the Fisheries Restoration Act.

While I wear a number of different hats in the fisheries management arena, my testimony today is on behalf of the Cape Cod Commercial Hook Fishermen's Association. In order to bring sustainable fisheries back to New England, we all need to work together to protect essential fish habitat, avoid bycatch, ensure adequate observer coverage and to ensure the long-term economic viability of our coastal fishing communities.

Unless and until these conservation principles are addressed in New England, there should be no consideration whatsoever of lifting the current moratorium on individual fishing quotas or individual transferable quotas.

Fish, like all other living creatures, need healthy habitat to survive. Habitats are those places fish need for spawning, feeding, shelter and growth. Science has shown that some of New England's most valuable commercial fish stocks, such as haddock and cod, depend on habitat along the ocean bottom for survival.

Many small in-shore dragger fleets fish sustainably on soft bottom, including Cape Cod's own Provincetown and Chatham fleets. In fact, for many years all draggers worked only on soft bottom, avoiding the hard bottom that could snag and tear their nets. Therefore, hard bottom became a refuge for the fish. But as New England fish stocks diminished, some draggers looked to technological advancements that allowed them to tow nets and gear along almost any type of sea floor.

The major effect driving the failure of many of our groundfish plans to rebuild is chronically poor recruitment. We cannot possibly expect good recruitment when the habitat necessary for survival is degraded. By better protecting fish habitats, scientists predict that we will increase recruitment in the future. Increased recruitment will quickly result in increased total allowable catches and consequently increased economic opportunity for all fishermen.

For fishermen, protecting fish habitat should not only be a matter of common sense but of dollars and cents. Thus, the Cape Cod Commercial Hook Fishermen advocate for incentives for fishing gear that cause less impact to essential fish habitat such as hook and line or soft bottom dragging and sensible controls on overly aggressive gear such as rock hoppers or rollers.

Landings are not the same as mortality. They should not be treated as the same by NMFS or the New England Council. However, because we lack any type of comprehensive observer program in New England, we are forced to use landings as a proxy for fishing mortality. The madness of this proxy was well highlighted last May when the Gulf of Maine cod trip limit was reduced to 30 pounds. Everyone knew, and many fishermen even testified that such a draconian reduction of the trip limit would not help to reduce mortality, it would only serve to generate dead and wasted discards.

Equally reprehensible to the dead, unquantified and wasted discards that ended up on the sea floor on the Gulf of Maine last year was the fact that jig fishermen, like Roger Brisson and Ed Skoniecki were put right out of business by the very same regulation. Roger and Ed worked from small boats by themselves and target directly on cod in the most sustainable way. They hauled them up from the depths with rods and reels, releasing undersized fish alive and having no impact on the habitat. Jigging has been used sustainably in New England waters to catch cod for 400 years. Never in modern fisheries has jigging accounted for more than a few percent of the overall catch.

But today, it is one of the most persecuted means of fishing in the Gulf of Maine. Why? Because our current management system ignores bycatch and fails to perform full cost accounting of the bycatch impacts of fishing. We should not be closing down sustainable directed fisheries to make room for bycatch in other sectors. It's just plain wrong.

By instituting a comprehensive observer program in New England we will begin to understand the true fishing mortality on our stocks. Likewise, an observer program will assist in generating regulations that provide incentives to sustainable fishermen which would be viewed as a solution to our fisheries and not as a problem.

I live in a small fishing community on Cape Cod. Without a healthy fishery, my community will no longer exist. Sure, the roads, the houses, the schools, the restaurants and especially the tourists will continue to exist. For the centuries of tradition, our unique character and the culture, the very heart and soul of Cape Cod will be cut out and lost forever. The first step to ensuring that we save the fishermen and our communities is to ensure that we save the fish and the diversity of the fleet.

The Regulatory Flexibility Act and National Standard Eight should not be used to undercut fisheries conservation. Although such arguments may appeal to the interests of some, it's short-sided, and it may lead to more and greater economic hardships for all of us in the long-term.

New England fisheries management is not ready to consider the utilization of individual fishing quotas or individual transferable quotas as a management tool. With pressing problems like protection of fish habitats, reduction of bycatch and ensuring survival of our fishing communities, we should not even be considering adding a layer of complexity that offers no solutions but guarantees added expense and conflict. It's unthinkable. Commercial fishermen in New England do not trust and consequently do not want IFQs nor ITQs. Fishermen are living in a time of uncertainty. Time and time again we have been advised to focus our attention away from groundfish. We've been asked to target dogfish, to sell back our boats, to target monkfish or whiting, even skates. Today many inshore fishermen are unable to access the groundfish resource. The stocks are simply found too far off-shore. Other fishermen are waiting for the stocks to recover. They're clamming or painting or constructing. How would they be considered in an IFQ or ITQ allocation? My answer is: They would not be considered.

The current Sustainable Fisheries Act provides the tools that we need to build sustainable fisheries for the future. In New England, we need more time to implement these provisions. We need to protect fish habitats and to reduce bycatch to ensure the future of our communities. We need to do these things before anyone should consider the possibility of lifting the moratorium on IFQs or ITQs.

Thank you very much for your attention and for this opportunity to express our opinion. The Cape Cod Commercial Hook Fishermen's Association is an organization dedicated to providing assistance and valuable constructive criticism to the New England fishery management process. We are encouraged by some recent investment in fisheries management, and will continue to work hard with all of you for the future of our fisheries and our communities.

Senator SNOWE. Thank you, Mr. Parker. We have to ask witnesses to summarize their statements, to keep them within the five-minute timeframe. Thank you.

[The prepared statement of Mr. Parker follows:]

PREPARED STATEMENT OF PAUL PARKER, EXECUTIVE DIRECTOR, CAPE COD COMMERCIAL HOOK FISHERMEN'S ASSOCIATION

Madame Chair and members of the Subcommittee, thank you for inviting me to testify on implementation of the 1996 Sustainable Fisheries Act and the ongoing reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

I am Paul Parker, a commercial hook and line fisherman aboard the fishing vessel PEGGY B II from the port of Wychmere Harbor in Harwich, Massachusetts. I also serve as the Executive Director of the Cape Cod Commercial Hook Fishermen's Association and as a member of the Board of Advisors of the Marine Fish Conservation Network (Network). As an active participant in the New England Fishery Management Council process, I serve on the Groundfish and Habitat Advisory Panels.

Founded in 1993, the Cape Cod Commercial Hook Fishermen's Association is a community based organization made up of over 800 members including commercial fishermen and concerned coastal residents who want to ensure that New Englanders have a healthy and productive fishery for the future. The Marine Fish Conservation Network is a unique coalition of over 90 national and regional environmental orga-

nizations, commercial and recreational fishing groups, and marine science groups dedicated to conserving marine fish and promoting their long-term sustainability. Over the past year, the Cape Cod Commercial Hook Fishermen's Association has been active within the Marine Fish Conservation Network in developing Magnuson Act reauthorization. The majority of the Network's reauthorization agenda is contained in the Fisheries Restoration Act, H.R. 4046, which was introduced by Congressman Wayne Gilchrest (R-MD), on March 21, 2000. The Cape Cod Commercial Hook Fishermen's Association supports this legislation and urges the Subcommittee to give serious consideration to the bill's provisions as it develops its reauthorization agenda. While I wear a number of different hats in the fisheries management arena, my testimony today is on behalf of the Cape Cod Commercial Hook Fishermen's Association.

In order to bring sustainable fisheries back to New England, we all need to work together to protect essential fish habitat, avoid bycatch, ensure adequate observer coverage and to ensure the long term economic viability of our coastal fishing communities. Until these critical conservation principles are addressed in New England, there should be no consideration whatsoever of lifting the current moratorium on Individual Fishing Quotas or Individual Transferable Quotas.

Protect Essential Fish Habitat

Fish, like all other living creatures, need healthy habitat to survive. Habitats are those places fish need for spawning, feeding, shelter, and growth. Science has shown that some of New England's most valuable commercial fish stocks, such as cod and haddock, depend on habitat along the ocean bottom for survival.

Ocean bottom habitat can be categorized as soft or hard bottom. Soft bottom, such as sand and mud, is habitat for many commercial species. Mobile fishing gear, or draggers, tow nets along this bottom to harvest these stocks. Hard bottom, such as gravel, cobble, and rocky substrates, is more structurally complex. Groundfish such as cod rely on hard bottom for juvenile survival and successful spawning. Some gear types, including hook and line, harvest fish along hard bottom without damaging fish habitat. However, dragging along hard bottom destroys vital habitat.

Many small inshore dragger fleets fish sustainably on soft bottom, including Cape Cod's own Provincetown and Chatham fleets. In fact, for many years all draggers worked only on soft bottom, avoiding the hard bottom that could snag and tear their nets. Therefore, hard bottom became a refuge for the fish. But as New England fish stocks diminished some draggers looked to technological advancements that allowed them to tow nets and gear along almost any type of seafloor. Hardware such as rollers and rockhoppers were added along the mouth of the nets so that fishermen could drag their gear along hard bottom without getting torn or snagged. Similar advancements in scallop dredging have allowed scallopers to work on hard bottom habitats as well.

In 1996, the Sustainable Fisheries Act called for fisheries managers to identify and protect essential fish habitat from destructive fishing practices such as the use of rockhoppers and rollers. To date, the New England Fishery Management Council has failed to do so, wrongly claiming that there is not enough scientific data to warrant prompt action. The single factor driving the failure of many of our groundfish plans to rebuild is chronically poor recruitment. How can we possibly expect good recruitment when the habitat necessary for survival is so degraded? By better protecting fish habitats, scientists predict that we will increase recruitment in the future. Increased recruitment will quickly result in increased Total Allowable Catches and consequently increased economic opportunity for all fishermen. For fishermen, protecting fish habitat should not only be a matter of common sense but of dollars and cents.

Thus, the Cape Cod Commercial Hook Fishermen's Association advocates for incentives to fishing gears that cause less impact to essential fish habitat such as hook and line or soft bottom dragging and sensible controls on overly aggressive gears such as rockhoppers or rollers.

Avoid Bycatch

As a fisherman, I can state with absolute confidence that landings are not the same as mortality. They should not be treated as the same by NMFS nor by the New England Fishery Management Council. However, because we lack any type of comprehensive observer program in New England, we are forced to use landings as a proxy for fishing mortality. The madness of this proxy was well highlighted last May when the Gulf of Maine cod trip limit was reduced to 30 pounds. Everyone knew, and many fishermen even testified that such a draconian reduction of the trip limit would not help to reduce mortality, it would only serve to generate dead and wasted discards.

Equally reprehensible to the dead, unquantified and wasted discards that ended up on the seafloor of the Gulf of Maine last year was the fact that jig fishermen like Roger Brisson and Ed Skoniecki were put right out of business by the very same regulation. Roger and Ed work from small boats by themselves and target directly on cod in the most sustainable way. They haul them up from the depths with rod and reel, releasing undersized fish alive and having no impact on the habitat. Jigging has been used sustainably in New England waters to catch codfish for the past 400 years. Never in modern fisheries management has jigging cod accounted for more than a few percent of the overall catch. And today, it has become one of the most persecuted means of fishing in the Gulf of Maine.

Why? Because our current management system ignores bycatch and fails to perform full cost accounting of the bycatch impacts of fishing. We should not be closing down sustainable directed fisheries to make room for bycatch in other sectors. It is just plain wrong. A dead fish is a dead fish, whether it is landed at the docks or whether it is thrown overboard. To generate more sustainable fisheries and a more complete understanding of the condition of our stocks, we must immediately quantify the degree of bycatch in our fisheries. The best way to do this is by requiring the establishment of observer programs in each fishery as envisioned by the Fisheries Recovery Act.

We have learned a number of valuable lessons from the recent access to the George's Bank Groundfish Closed Areas by the scallop fleet. One of the best results of the access has been the development of a hard bycatch quota on yellowtail flounder. Quite simply, scallops are worth a lot of money. However, yellowtail flounder live in the same areas as the scallops and they have traditionally been caught in the process of scalloping. Because we are trying to conserve yellowtail and promote rebuilding of the stock, managers created a hard total allowable catch of yellowtail which, when reached would cause shut down of the access to closed areas program. The program worked, and scallopers innovated creative means to minimize yellowtail bycatch while maximizing their access to the valuable scallops. Institutionalizing incentives to reduce bycatch, like those that worked so well in the scallop fishery, is also envisioned by the Fisheries Recovery Act.

By instituting a comprehensive observer program in New England, we will begin to understand the true fishing mortality on our stocks. Similarly, once we have a baseline of information regarding bycatch rates in various fisheries and sectors, we will be better equipped to predict the implications of our management decisions. Our managers will be far less likely to call upon measures like a 30 pound trip limit to conserve codfish. Likewise, an observer program will assist in generating regulations that provide incentives to sustainable fishermen like Ed and Roger who should be viewed as a solution to our fisheries crisis and not as the problem.

Ensure Economic Viability of Coastal Fishing Communities

I live in a small fishing community on Cape Cod. Without a healthy fishery, my community will no longer exist. Sure, the roads, the houses, the schools, the restaurants and especially the tourists will continue to exist but the centuries of tradition, our unique character and the culture, the very heart and soul of Cape Cod will be cut out and lost forever. The first step to ensuring that we save the fishermen and their communities is to ensure that we save the fish.

In recent years, there has been significant debate over application of National Standard 8 and the Regulatory Flexibility Act. Upon developing fish conservation measures, NMFS must consider alternatives that accomplish the objectives of the Magnuson-Stevens Act AND that minimize significant impacts on small businesses, like fishermen. Although economic impacts must be considered, they cannot take precedence over the Magnuson-Stevens Act's mandate to conserve fish. In an instance where several alternatives are equally protective of marine fish, but have varying degrees of adverse economic impacts to fishermen, then NMFS should choose the alternative with the least economic impact. The Regulatory Flexibility Act and National Standard 8 should not be used to undercut fisheries conservation. Although such arguments may appeal to the interests of some fishermen, it is a short-sighted point of view that will lead to more and greater economic hardships for fishermen in the long-term.

Extend the Moratorium on IFQ/ITQs

New England fisheries management is not ready to consider the utilization of Individual Fishing Quotas or Individual Transferable Quotas as a management tool. With pressing problems like protection of fish habitats, the reduction of bycatch and ensuring survival of our fishing communities, how can we consider adding a layer of complexity that offers no solutions? It is unthinkable.

A rallying point for nearly all fishermen across New England is our universal opposition to IFQ/ITQs. A handful of individuals have worked to portray that there exists acceptance of this management tool but I assure you that these contentions are false. Fishermen in New England do not want IFQ/ITQs!

Fishermen are living in a time of uncertainty. Time and time again we have been advised to focus our attention away from groundfish. We have been asked to target dogfish, to sell back our boats, to target monkfish or whiting, even skates. Today, many inshore fishermen are unable to access the groundfish resource. The stocks are simply found too far offshore. Other fishermen are waiting for the stocks to recover. They are clamming or painting or constructing. How would they be considered in an IFQ/ITQ allocation. The answer is: they would not be considered!

If IFQ/ITQs were allowed in New England fisheries and the allocations were based on catch history, which they always are, it would generate a tremendous windfall profit for the largest operators who have caused the most damage. Why would we choose to consider IFQ/ITQs now, when allocation would reward those individuals whom had contributed most to our fisheries crisis. This tremendous windfall profit would then place today's fisherman, that is waiting for the fish to recover, in the untenable position of having to sell their permit to these newly created millionaires. If this is allowed to happen, our fishery will no longer include thousands of independent operators, it will be one of tenant farmers to a handful of large corporations. IFQ/ITQs, if allowed, will do to New England fishing communities what agribusinesses did to the family farmers in the 1960s and 1970s. Please don't let that happen.

The current Sustainable Fisheries Act provides many of the tools that we need to build sustainable fisheries for future generations. In New England, we need more time to implement these provisions. We need to protect fish habitats and to reduce bycatch to ensure for our communities. We need to do these things before anyone should consider the possibility of lifting the moratorium on IFQ/ITQs.

Conclusion

Thank you very much for your attention and for this opportunity to express our opinion. The Cape Cod Commercial Hook Fishermen's Association is an organization dedicated to providing valuable constructive criticism to the New England fishery management process. We are encouraged by some recent developments in fisheries management and will continue to work hard for the future of our fishery and our communities.

Senator SNOWE. Mr. Cunningham.

STATEMENT OF C.M. "RIP" CUNNINGHAM, PUBLISHER OF SALT WATER SPORTSMAN MAGAZINE, AND CHAIRMAN, AMERICAN SPORTFISHING ASSOCIATION'S SALTWATER GOVERNMENT AFFAIRS COMMITTEE

Mr. CUNNINGHAM. Thank you, Madam Chair and distinguished members of the Committee. I appreciate the opportunity to testify on behalf of the recreational fishing industry. As publisher of Salt Water Sportsman magazine and as chairman of the American Sport Fishing Association's government affairs salt water committee, we recognize that sound resources are the basis for a strong industry and are united in our commitment to proper management.

Sport fishing is big business. In 1996, 10 million Americans spent over 100 million days fishing in salt water. Approximately 750,000 of those individuals in Massachusetts waters. The economic impact exceeded $8.5 billion nationally, accounted for 288,000 full-time jobs, and generated $25 billion in overall economic output. In Massachusetts alone, 5,000 jobs and over $420 million of economic activity.

These jobs and economic benefits are in jeopardy with 46 percent of our New England stocks overfished and their habitat compromised. This includes cod, as earlier mentioned, once the staple of this region whose decline is evidenced by the 61 percent annual decrease in recreational catch from 1996 to 1998.

Managing fish populations is only half the equation. One of the keys to achieving a healthy fish stock is to protect their habitat. It makes little sense to try to rebuild the fish stocks while continuing to diminish their habitat. The 1996 reauthorization of Magnuson-Stevens included a new essential fish habitat provision to address this aspect. I supported these essential fish habitat provisions and continue to believe they are crucial. Some have dramatized the dire consequences of these positions, yet those fears have not been realized here in New England. But the last four years have shown that NMFS does not have the resources to delineate sensitive areas. Like all conservation-minded recreational anglers, I urge the Committee to continue to support EFH provisions.

Solid data is necessary for making accurate management decisions such as those relating to EFH. As Magnuson-Stevens requires, both biological and socioeconomic data must be used. I take issue with the marine recreational fisheries statistics survey that is the primary method used by NMFS to assess the impact of salt water sport fishing. This data is used to set catch targets and allocate fisheries. Many current allocations of recreational quotas are little more than guesswork.

Funding for MRFSS has not increased significantly for more than 20 years, yet gathering this data is necessary to fulfill requirements of Magnuson-Stevens. I might ask that the Senate look toward the lands bill that is currently being considered in the House and the Senate. If the substantial OCS oil and gas revenues are going to be diverted from the general budget and dedicated to conservation efforts, I cannot help but think that directing some of that money into collecting accurate data to better manage our nation's fisheries is a worthwhile investment.

The detrimental effect of some commercial fishing practices is one area where we do have adequate scientific information. Preventable human activities that cause damage to vast stretches of fish habitat should be dealt with. One way to protect habitat is to restrict harmful fishing practices and gear types by creating marine protected areas, a concept born of the system of terrestrial parks and refuges. On land or on water, it can be a useful tool if used properly. Unfortunately, for many MPAs have become the silver bullet. Rather target management on the most harmful practices, it seems easiest to exclude everyone. This mentality concerns me. In the rush to close off areas in the name of habitat preservation and fisheries management, it is often forgotten that we are excluding public access to areas of traditional use. Recreational fishing is still universally accepted on terrestrial parks and refuges.

A recent National Research Council report found that the annual recreational catch was only a fraction of that caught commercially, yet each pound of recreationally caught fish produced 40 times the economic benefit of a pound of commercially caught fish. I have previously stated that right here in Massachusetts salt water sport fishing contributes $420 million to the local economy, also over 2 million of Wallop-Breaux excise tax funds were returned to Massachusetts to sport fish restoration and aquatic resource education programs. Recreational anglers are among the first conservationists. Why penalize them with no-take zones that remove their public access?

In conclusion, the price of sustainable resources will be eternal vigilance. The Magnuson-Stevens Act goes a long way to help with that goal, but it too needs eternal vigilance.

Thank you for allowing me to comment.

[The prepared statement of Mr. Cunningham follows:]

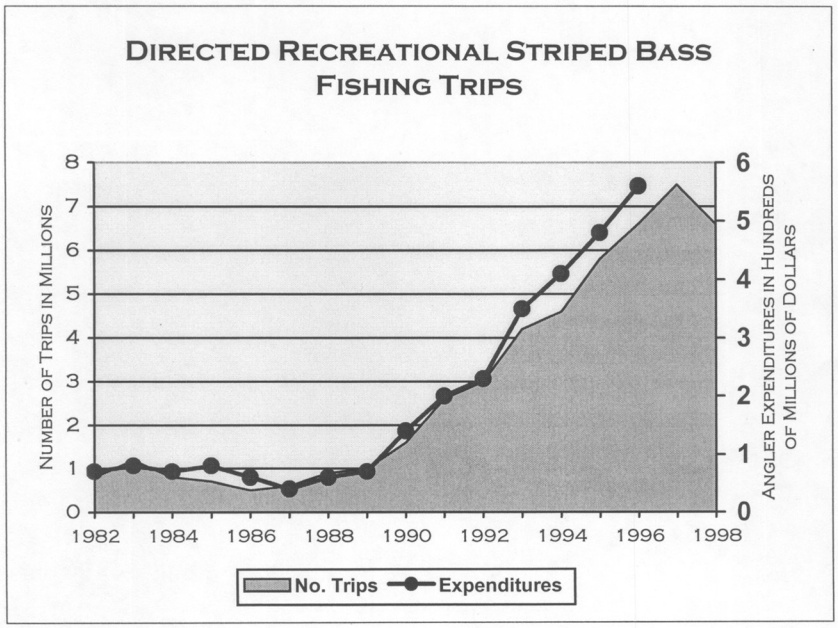
PREPARED STATEMENT OF C.M. "RIP" CUNNINGHAM, PUBLISHER OF SALT WATER SPORTSMAN MAGAZINE, AND CHAIRMAN, AMERICAN SPORTFISHING ASSOCIATION'S SALTWATER GOVERNMENT AFFAIRS COMMITTEE

Madam Chair, I appreciate the opportunity to testify before the Subcommittee about the Magnuson-Stevens Act on behalf of the recreational fishing industry. I am the publisher of Salt Water Sportsman magazine and chairman of the American Sportfishing Association's saltwater government affairs committee. Salt Water Sportsman has a national readership of 1.2 million, making it the largest saltwater fishing magazine in the U.S. ASA is a non-profit trade organization representing the environmental and business interests of the sport fishing industry. We recognize that a sound resource is the basis for a strong industry and, as such, are united in our commitment to ensure the proper management of our nation's fisheries.

I am pleased to provide the Committee with some thoughts on the reauthorization of the Magnuson-Stevens Act. As you know, there are many saltwater fish species that are of extreme importance to recreational anglers and the sport fishing industry here in New England. In addition to being a popular leisure activity, saltwater sport fishing is also big business. In 1996, approximately 10 million Americans spent just over 100 million days fishing in saltwater; nearly 750,000 of those individuals spent time fishing in the waters off of Massachusetts. The economic impact of this activity exceeded eight and a half billion dollars nationally at the retail level, accounted for the equivalent of 288,000 full-time jobs, and generated $25 billion in overall economic output. In Massachusetts alone, approximately 5,000 jobs and over $420 million was infused into the local economy due to saltwater recreational angling. Many of these jobs and economic benefits are in jeopardy as stocks of saltwater game fish are overfished and their habitat compromised. The promise of the Magnuson-Stevens Act has not yet been realized.

Through strict catch levels and the continuous efforts of conservation-minded members of the New England Fishery Management Council, progress has been made on some New England species. Georges Bank populations of yellowtail flounder, near a historical low in 1994, are now rapidly approaching maximum sustainable yield. Considered commercially extinct not long ago, Georges Bank haddock have reversed their steep decline. Unfortunately, there are many other stocks not doing quite so well after nearly 30 years of federal management. Forty-six percent of NMFS-managed species in New England are known to be overfished, including Gulf of Maine cod, once the staple fish of this region. As evidence, the recreational catch of Gulf of Maine cod from 1994 to 1998 has declined an average of 61 percent per year. When compared to the commercial sector T.A.C. overage for 1996, 97, and 98 of 9,612 metric tons, the recreational catch for that period was only 20.7 percent of the overage alone. Nationally, an additional 75 percent of stocks under federal management maintain an "unknown" status. Undoubtedly, some of these "unknown" species are overfished.

Despite the enormity of the problem facing NMFS, the New England Fishery Management Council and above all, the local fishermen (both recreational and commercial), I am optimistic that a viable, diverse recreational fishery can again be established in New England. No species is more important to this than the striped bass. Once decimated by overfishing throughout its range, striped bass rebounded in the 1990's to regain its title as perhaps the most important recreational fish along the northeast Atlantic coast. The recovery was neither quick nor easy. However, it has been worth the hardship as recreational anglers and local coastal communities are now reaping the rewards of a strong recreational striped bass fishery. Since 1987, recreational angler expenditures and number of trips directed at striped bass have increased more than ten fold as evidenced in the figure below.



Given the striped bass' relative abundance, the success story seems complete. It is easy to forget that striped bass remain vulnerable to overfishing. Although we may not need to revert to the restrictions of 15 years ago, difficult management decisions are still required to maintain a healthy recreational fishery. The effort to rebuild striped bass populations was the result of unprecedented cooperation among the states from North Carolina to Maine. The effort to maintain healthy stocks must show this same commitment. Nevertheless, equity between the states must be demonstrated. The recreational fishing interests that worked hard for striped bass populations fifteen years ago must have the opportunity to catch their fair share of the fish they helped to rebuild. Being a recreational fisherman in Massachusetts, I want the same chance to catch striped bass as those anglers do down in Maryland.

It must be recognized that there are structural changes in the population with any given geographic location. As striped bass migrate throughout the course of the year, removing too many large fish in one area, may affect the conservation measures needed in an adjacent area. While the central goal is healthy striped bass populations, regulations that disproportionately reward one region over another must be avoided. While the conservation measures to which I am referring will likely not, for example, put a charter boat or local bait shop out of business, the economic consequences to local communities and individual anglers can be significant. I would ask the Committee to carefully examine these and similar equity issues, paying particular attention to the opportunity costs of regulation on recreational anglers and the industry.

Managing fish populations is only half of the equation. One of the keys to achieving healthy fish stocks is to protect their habitat. It makes little sense to try to rebuild the fish stocks while continuing to diminish their necessary habitat. There are several factors contributing to habitat degradation, emanating from human activities both on the land and on the water.

The 1996 reauthorization of the Magnuson-Stevens Act included a new Essential Fish Habitat provision that was supposed to address this aspect. I supported these Essential Fish Habitat (EFH) provisions and continue to believe protecting fish habitat is crucial. Recently, some have made dramatic characterizations about the dire consequences on development from implementing these provisions. Those fears have not been realized here in New England. To my knowledge, no reasonable development has ever been halted due to Magnuson's EFH protections.

Nevertheless, the last four years have made it evident that NMFS has neither the resources nor the scientific data to delineate areas that promote habitat preservation while taking into account the socioeconomic effects on local communities. Like

most recreational fishermen, I have a strong conservation ethic. While I have and continue to be outspoken about protecting fish habitat, from a practical matter, I do believe it is not possible to delineate all waters in the US EEZ as essential fish habitat. I urge the Committee to help NMFS find the correct balance.

Solid data is necessary for making accurate management decisions such as those relating to EFH. As Magnuson-Stevens requires, both biological and socioeconomic data must be used in making such decisions. I feel that on both of those fronts, NMFS does not often have the information in their possession to make well-supported decisions. Specifically, take for example the Marine Recreational Fisheries Statistics Survey (MRFSS) that is the primary method used by NMFS to assess the impact of saltwater sport fishing. Both catch data and general demographic information is collected by the annual survey. This data is used to set catch targets and allocate fishery resources among various groups. I take issue with the accuracy of the biological data collected and its use to make educated decisions about allocation of recreationally important species. Many current allocations of recreational quotas are little more than guesswork and give rise to serious questions about equity of allocation decisions.

I have seen little effort by NMFS to seek to improve the data collection deficiency. Funding for the MRFSS has not increased significantly since it began more than twenty years ago. While simply throwing money at a problem is not the solution, I see a definite cause and effect relationship here. Furthermore, gathering this data is necessary to fulfill the requirements set forth in Magnuson-Stevens. I might ask that the Senate look toward the lands bill that is currently being considered in the House and the Senate. If the substantial OCS oil and gas revenues are going to be diverted from the general budget and dedicated to conservation efforts, I cannot help but think that directing some of that money into collecting accurate data to better manage our nation's fisheries is a worthwhile investment.

The detrimental effect of some commercial fishing practices is one area where we do have adequate scientific information. Preventable human activities that cause damage to vast stretches of fish habitat should be dealt with. One way to protect habitat is to restrict harmful fishing practices and use of particular gears by creating marine protected areas (MPA). This notion of marine zoning, through the establishment of sanctuaries and reserves as a method to minimize pressure on the resource, was born from the system of terrestrial parks and refuges. Just as it is on the land, it can be a useful tool on the sea if it is used properly.

Unfortunately, for many, MPA's have become the silver bullet solution to the fishery management crisis. Rather than target management on the most harmful practices, it just seems easier to exclude everyone. This mentality concerns me greatly. In the rush to close off areas in the name of habitat preservation and fisheries management, it is often forgotten that we are excluding the public from areas where they traditionally have recreated. Last I checked, recreational fishing is still a universally accepted practice in nearly all terrestrial parks and refuges. So it should be on the sea. While limiting public access to certain very sensitive areas may be required in certain cases, I am disturbed that other equally effective and less draconian measures to control recreational fishing pressure may be bypassed in favor of no-take fishing zones. In New England, the NEFMC research has concluded that the impact of recreational fishing in managed closed areas has no impact on the recovery of over-fished groundfish stocks.

A recent National Research Council report found that the annual recreational catch was only a fraction of that caught commercially, yet each pound of recreationally caught fish produced 40 times the economic benefit of a pound of commercially caught fish. I had previously stated that right here in Massachusetts, saltwater sport fishing contributes $420 million to the local economy. Further, significant monies are collected on each purchase of sport fishing equipment through the payment of the Wallop-Breaux excise tax. Over $2 million of those collections were returned to Massachusetts to support fish restoration and aquatic resource education programs. Recreational anglers are among the first conservationists, why penalize them by establishing no-take zones that remove their access to the water? If public access to the resource is restricted, fishery participation may well decrease and vital influxes of monies to local communities may evaporate.

It seems to me, that before public access to the resource is limited, other fishery management tools need to be exhausted. Recreational fisheries are effectively managed through closed seasons, bag limits, or minimum sizes. Then, should the evidence show that specific sites need extra protection, recreational anglers need to be included in the designation process with preserving public access among the top priorities.

One practical matter on the establishment of MPA's that is of concern regards the sheer number of efforts underway to establish MPA's. The National Park Service,

Department of the Interior, and NMFS are just a few government entities contemplating marine closures. It makes it difficult to follow these different efforts and extremely time-consuming to comment at all that would affect the recreational fishing industry. I would ask the Committee to consider consolidating these efforts to better facilitate public participation. The regional fishery management councils seem one logical place to centralize these efforts.

Let me close by stating that fishery management begins here at home with a strong Magnuson-Stevens Act. However, the rebuilding of fish stocks takes a dedicated commitment both nationally and internationally. While it is difficult to look beyond our borders when many of our fisheries resources are in decline, fish are global resources with many species important to the United States migrating freely between the waters of many different nations.

The U.S. has shown a positive commitment to participating with international management bodies to improve management of these international, migrating fish stocks. Through the leadership of the United States, progress has been made. I hope to one day soon see sustainable swordfish populations return to the coast of Massachusetts. With strong U.S. participation at the International Conference on the Conservation of Atlantic Tunas, this may be a reality by the end of the decade.

As is the situation here with our fishery resources, much remains to be accomplished on these international stocks. We must continue to be a conservation leader both nationally and internationally.

I thank the Committee for listening to my thoughts on Magnuson-Stevens reauthorization.

Senator SNOWE. Thank you, Mr. Cunningham.

Mr. Weiss.

STATEMENT OF PETER WEISS, PRESIDENT, GENERAL CATEGORY TUNA ASSOCIATION

Mr. WEISS. Thank you, Madam chairwoman, Senator Kerry, Senator Stevens. My name is Peter Weiss, I'm president of the General Category Tuna Association. There are over 7500 permitted fishermen in the general category, 2820 from Massachusetts, 1069 from Maine, 469 from New Hampshire.

Over a thousand individuals captured bluefin tuna last year. General category permit holders are commercial fishermen who sell their fish. When all these boats and fishermen are lumped together, one must assume the Bluefin Tuna Fishery is one of the largest commercial fisheries in the United States.

The Magnuson-Stevens Act was an important step in an effort to conserve fish and also to conserve the fishermen. I have several different issues I would like to comment on.

Section 301, paragraph 2 of the Act states: "Conservation and management measures shall be based upon the best scientific information available." The disputes between scientists and fishermen are as old as time. Today, many new assessment tools are available to scientists. As an example, we now have available pop-up tag technology which allows us to see the distance, depth and migration routes bluefin tuna have traveled for a period of time after they have been tagged. Results have found that over 30 percent of the tagged fish have crossed the imaginary 45-degree boundary line that separates the east and the west management areas. These tags prove beyond a doubt that there is more intermingling among eastern and western stocks than had been previously thought. Yet the NMFS scientific community is very slow to use these tagging results in any type of bluefin tuna assessment.

I would urge this Committee to put language in the Magnuson Act that would force the NMFS scientists to use these pop-up tags and their information in further assessments as soon as possible.

NMFS has over 100 lawsuits pending at this particular time. It seems to me that this is rather an excessive amount of lawsuits. I believe some of these suits are frivolous, others are not. I believe when the Magnuson Act is reauthorized, many areas in the Act have to be clarified so that the true intent of various sections are not ambiguous and allows anyone who is not happy with NMFS, with a NMFS rule, to hire a lawyer and sue. As an example, the conservation community led by the National Audubon Society, has sued National Marine Fisheries over rebuilding of bluefin tuna stocks. They claim under the Act there should be a 10-year rebuilding program. On the other hand, NMFS claims that the current rebuilding program is appropriate and interprets the Act correctly due to the quota of the fishery which is regulated by ICCAT. I believe clarification of the Act in various areas would be very important. And there is an immediate need to make serious progress in this area.

I'd like to make a short comment on law enforcement, something which has been touched on in the previous testimony. Fishery rules and regulations are useless unless they're enforceable. And there is no question that the amount of new rules on fisheries, including the Bluefin Tuna Fisher, have multiplied in the last ten years, especially since the implementation of the Sustainable Fisheries Act. Nevertheless, to the best of my knowledge, NMFS still has approximately the same amount of enforcement agents it had 10 years ago. If you're going to create rules and you're going to spend time reauthorizing this Act to make it more efficient, I urge you, whether it be in the Act itself or your important positions as Senators, to see to it that NMFS has available to it the moneys to dramatically enlarge its enforcement staff. I just cannot emphasize enough, rules without enforcement are no rules at all.

That brings me to my last subject, and hopefully within my five-minute timeframe, one that I'm personally deeply involved in and have the support of 99 percent of permit holders in the general harpoon categories. I'm talking about vessels using spotter planes to capture bluefin tuna. Spotter planes are the scourge of the fishery. There are not many planes, probably 25 at a maximum and in the harpoon category approximately 17 boats. These 17 boats using spotter planes in the harpoon category captured 95 percent of the fish in that category, which has over 100 permit holders.

How this situation can be tolerated when a Magnuson Act national standard mandates that if it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such an allocation shall be carried out in such a manner that no particular individual, corporation or other entity acquires an excessive share of such privileges.

The use of spotter planes in both of general and harpoon categories is creating a situation nothing short of chaotic. The wild west has reinvented itself off the waters of New England. NMFS has stated part of the rationale for the general and harpoon categories was to spread the greatest number of fish among the greatest number of fishermen. Planes are preventing this objective from ever being achieved. I could spend hours talking about this issue, but within the context of my timeframe I will just quickly make the following points.

Airplanes encourage cheating since they can see enforcement from a long distance away. Planes have been known to dive bomb boats when they feel that the boat is encroaching upon the fish they're looking at. The ridiculous idea that pilots advocate that they're able to minimize the capture of undersized bluefish because their ability to tell size in the air is nothing short of a joke.

Spotter planes and their boats accelerate the catch in both harpoon and general categories. Two years ago NMFS adopted a final rule banning airplanes in the general category from using spotter planes. The Spotter Pilots Association sued the secretary and won a ruling in Federal court which held that NMFS was arbitrary and capricious in its ban. NMFS then stated this issue should be addressed to a Highly Migratory Advisory Panel of which I am a member. This panel was created by the Magnuson-Stevens Act. I've sat on this panel for two years, and we tried to reach consensus on issues, consensus being the preferred avenue. In two years consensus was impossible to reach in almost any issue except what time we adjourned. But we did reach a strong consensus on the spotter plane issue. We did reach a strong consensus.

With this advice in hand, last March NMFS proposed a new rule banning spotter planes in both the general and harpoon categories. To this very day, to the very moment after numerous false promises by NMFS to Congress and the fishermen, this proposed rule of last March is not final. I urge you to consider and do the right thing and establish a law banning fishing vessels from using aircraft to assist in the catch of bluefin tuna. Thank you very much.

Senator SNOWE. Thank you, Mr. Weiss.

[The prepared statement of Mr. Weiss follows:]

PREPARED STATEMENT OF PETER WEISS, PRESIDENT, GENERAL CATEGORY TUNA ASSOCIATION

My name is Peter Weiss, President of the General Category Tuna Association. I am also Chairman and Chief Executive of Bradford Industries, Inc., a manufacturer of coated fabrics in Lowell, Massachusetts, employing approximately 175 people.

There are over 7,500 permitted fishermen in the General Category; 2,820 from Massachusetts, 1,069 from Maine, and 469 from New Hampshire. Although it is obvious not all of the permit holders are active fishermen, many thousands are. Over 1,000 individuals captured bluefin tuna last year. General Category permit holders are commercial fishermen who sell their fish. When all these boats and fishermen are lumped together, one must assume the Bluefin Tuna Fishery is one of the largest commercial fisheries in the United States.

No state in the country benefits more from the Bluefin Fishery than the Commonwealth of Massachusetts. It is not just the $25 to $32 million dollars in sales of bluefin tuna annually, but also the tens of millions in economic activity stemming from all the unsuccessful fishing effort; bait and tackle, marinas, fuel, insurance, hotels, boat manufacturers, etc.

The Magnuson-Stevens Act was an important step in an effort to conserve fish and also conserve the fisherman. I do not claim to be an expert on fisheries, but I have been fishing for BFT for 30 years, and I do feel I am somewhat knowledgeable on various fishing matters.

I have several different issues that I would like to comment on. Section 301, Paragraph 2, of the Act states, "Conservation and management measures shall be based upon the best scientific information available."

The disputes between scientists and fishermen are as old as time. Today, many new assessment tools are available to scientists. As an example, we now have available pop-up tag technology which allows us to see the distance, depth, and migration routes bluefin tuna have traveled for a period of time after they have been tagged. The results of these tags have been amazing. Results have found that over 30 percent of the tagged fish have crossed over the imaginary 45 degree boundary line that separates the Eastern and Western management areas. These tags prove

beyond a doubt that there is more intermingling among Eastern and Western stocks than had been previously thought, yet the NMFS scientific community is very slow to use these tagging results in any type of bluefin tuna assessment. I would urge this Committee to put language in the Magnuson Act that would force the NMFS scientists to use these pop-up tags in their further assessments as soon as possible. If this is done in the U.S., the SCRS of ICCAT will then be forced to use the results of these tagging studies. One must remember, it does not behoove countries fishing in the Eastern Atlantic to find proof that there is much intermingling of stocks. Right now, the two stock theory and the arbitrary dividing line results in all of the conservation being done in the West by U.S. fishermen. Here we have an opportunity to use 21st Century science in assessments to fix the flawed science and unfair management program. A total of 52,000mt were reported caught in the East in 1996, while only 2500mt of Bluefin were caught in all of the West. This is totally ridiculous!

NMFS has over 100 lawsuits pending at this particular time. It seems to me that this is rather an excessive amount of lawsuits. I believe some of these suits are frivolous, others are not. I believe when the Magnuson Act is reauthorized, many areas in the Act have to be clarified so that the true intent of various sections are not ambiguous and allows anyone who is not happy with the NMFS rule to hire a lawyer and sue.

As an example, the conservation community, led by the National Audubon Society, has sued National Marine Fisheries over rebuilding of bluefin tuna stocks. They claim, under the Act, there should be a ten year rebuilding program. On the other hand, NMFS claims that the current rebuilding program is appropriate and interprets the Act correctly due to the quota of the fishery which is regulated by ICCAT. Both these interpretations come from the Act. The fact that there are so many lawsuits must be interpreted as a signal that there is something wrong. I believe clarification of the Act in various areas would be very important and there is an immediate need to make serious progress in this area.

I would like to make a short comment on law enforcement. Fishery rules and regulations are useless unless they are enforceable, and there is no question that the amount of new rules in fisheries, including the Bluefin Tuna Fisher, has multiplied in the last ten years, especially since implementation of the Sustainable Fisheries Act. Nevertheless, to the best of my knowledge, NMFS still has approximately the same amount of enforcement agents it had ten years ago. If you are going to create rules and you are going to spend time reauthorizing this Act to make it more efficient, I urge you, whether it be in the Act itself, or in your important positions as Senators, to see to it that NMFS has available to it the monies to dramatically enlarge its enforcement staff. I can tell you from my own experience in the Bluefin Tuna Fishery, effective enforcement is difficult, at best, and that is not because enforcement is not capable, it is because it does not have the manpower nor the resources. I just cannot emphasize enough, rules without enforcement are no rules at all.

This brings me to my last subject, one that I am personally deeply involved in and have the support of 99 percent of the permitted holders in the General and Harpoon Categories. As you know, for the last several years, NMFS and all the organizations involved in the fishery have worked together to try to bring a workable fishing plan for the domestic Bluefin Tuna Fishery. We have settled many of our differences. Today, a bluefin tuna fisherman knows when he is going to fish, what his quota is, what days off he has, and all the other important issues that he faces during the season. We only have one major, major domestic problem left, and this problem, unless it is corrected, will continue to create more havoc in this fishery than one can believe. I am talking about vessels using spotter planes to capture bluefin tuna. Spotter planes are the scourge of the fishery. We are not talking about many planes, probably 25 at a maximum, and in the Harpoon Category, approximately 17 boats. These 17 boats using spotter planes in the Harpoon Category capture approximately 95 percent of the fish in that Category. In the Harpoon Category, the top 17 boats all use spotter planes and captured over 90 percent of the fish. How can this situation be tolerated when a Magnuson Act National Standard mandates that: If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The use of spotter planes in both the General and Harpoon Categories is creating a situation nothing short of chaotic. The wild west has reinvented itself off the waters of New England. The Harpoon Category was established because it represented a special and unique method of capturing Bluefin. It was supposed to be weather

dependent and that's why multiple daily catches were allowed. Airplanes were never a part of this tradition. The General Category method of taking Bluefin also did not historically use aircraft. In fact, as NMFS has stated, part of the rationale for the General and Harpoon Categories was to spread the greatest number of fish among the greatest number of fishermen. Airplanes are preventing this objective from ever being achieved.

I could spend many hours talking about this issue, but within the context of my timeframe, I will just quickly make the following points. Airplanes encourage cheating, since they can see enforcement from a long distance away, airplanes have been known to dive-bomb boats, my boat, in particular, when they feel the boat is encroaching upon the fish they are looking at. The ridiculous idea that pilots advocate that they are able to minimize the capture of undersized Bluefin because of their ability to tell the size in the air is nothing short of a joke. Can you imagine being able to tell the difference between a 72 and a 73″ fish from 500 feet in the air; 72 being legal and 73 being not. Airplanes have driven many fishermen to the point where the only method of fishing to them without competing with airplanes is chumming. Spotter planes and their boats accelerate the catch in both the Harpoon and General Categories. It is not unusual for the Harpoon Category to be filled by the middle of July. Before the advent of airplanes, many times the Harpoon Category was not even caught after a whole season of fishing. Pilots are not regulated by NMFS, they are not licensed by NMFS, and they are not fishermen. General Category boats using spotter planes also cheat by capturing more than one fish, passing extra catches to other boats or skiffs, interfere with other fishermen, and, as I have stated before, create havoc.

Two years ago, NMFS adopted a final rule banning airplanes in the General Category from using spotter planes. They left out the Harpoon Category in this rule which was a gigantic mistake. The Spotter Pilot Association sued the Secretary and won a ruling in Federal Court in Boston which held NMFS to be arbitrary and capricious in its ban. NMFS then stated that this issue should be addressed by the Highly Migratory Advisory Panel of which I am a member. This Panel was created by the Magnuson Act.

I have sat on this Panel for two years and we tried to reach consensus on issues, consensus being the preferred avenue. In two years, consensus was impossible to reach on almost any issue, but we did reach a strong consensus on the spotter planes issue. The vote was unanimous, with two abstentions, to ban the use of spotter planes by fishing vessels. This Panel is made up of over 20 members from the academic community, the environmental community, commercial, and recreational fishermen. With this advice in hand, last March, NMFS proposed a new rule banning spotter planes in both the General and Harpoon Categories. To this very day and to this very moment, after numerous false promises by NMFS to Congress and the fishermen, this proposed rule of last March is not final. Why is it not final? The explanation I get is the Justice Department is afraid Secretary Daley will be held in contempt of court. Not only do we not believe this, but the lawyers who we have hired to intervene in this matter if it ever comes to court again agree not only will the secretary not be held in contempt, but we had a very good chance of winning the case. The Government is just plain afraid to lose in court. This is a completely unacceptable reason not to again finalize a rule banning spotter aircraft which gathered more supportive comments for NMFS than any other rule in its history.

I urge you to consider and do the right thing and establish a law banning fishing vessels from using aircraft to assist them in the capture of bluefin tuna. As I have stated before, 99 percent of the fishermen in the Bluefin Tuna Fisher do not want airplanes. Please use any alternative necessary to get this done before another Giant Bluefin season is ruined for the vast majority of permit holders.

Finally, for the record, Senator, GCTA supports the administrative and technical changes suggested by East Coast Tuna last September in Portland, Maine relative to National Standard No. 8 and the HMS Advisory Panel and the ICCAT Commissioners.

Senator SNOWE. Ms. Sanfilippo.

STATEMENT OF ANGELA SANFILIPPO, PRESIDENT, GLOUCESTER FISHERMEN'S WIVES ASSOCIATION

Ms. SANFILIPPO. Madam Chairperson and members of the Subcommittee, thank you for inviting me to testify on the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act. I'm Angela Sanfilippo, President of the Gloucester Fish-

ermen's Wives Association and a member of the Board of Directors of Massachusetts Fishermen's Partnership. And I am here to represent the partnership consensus. The Massachusetts Fishermen's Partnership is an umbrella group consisting of 18 commercial fishing organizations representing all the various gear sectors of Massachusetts. The Massachusetts Fishermen's Partnership and its member organizations currently represent more than 3,000 fishermen and their family members.

For the past four months the MFP has been engaged in the formal consensus-building process to provide significant input in the reauthorization of the Magnuson Act. The result is a formal document which contains 26 points of consensus agreed to by a large number of members of the MFP. It is that report which forms the core of today's presentation.

To summarize, all participants in this process share a common concern for the sustainable fishery. The fishermen developed a consensus to be partners with the regulators and management and with scientists and research. In addition, they express the desire to be partners with the Coast Guard and enforcement. There was also recognition of the need to redefine the role and organization structure of the management Council and other regulatory bodies. However, before we'll deal with reorganization, it's necessary to clarify and redefine some of the terms which have so often led to confusion and dissent about the regulatory measure. First and foremost is the term "overfishing." A strict adherence to the previous use of this term leads inescapably to the conclusion that all declines in fish stock are due to overfishing, even in cases where other factors can be shown to be the primary cause.

Other terms battered loosely about in sometime contradictory ways have been "maximum sustainable yield," "healthy fishing community" and "best available science." Alternatively, we recommend the following new definitions. "Overfishing" means that amount of fishing mortality, not including mortality or stock population declines from other causes. "Maximum sustainable yield" should be dropped from the legislation and replaced by "sustainable yield" to reflect more realistic goals. Sustainable yield should be a range of fishing activity sufficient to maintain a sustainable fishery. "Sustainable fishery" means a fishery that maintains a healthy fish stock and a healthy fishing community. "Healthy fish stock" means a population of fish species that are biologically stable or growing in abundance and may include fish stock that have changed their range or migratory patterns. "Fishing community" means U.S. vessels, crew, people and related business who earn income as a result of harvesting, processing of wild fish stock. "Healthy fishing community" means a fishing community as defined above that maintains sustainable participation in the U.S. fisheries and provides for social, economic and cultural need of such community. "Best available science," must be collected by both government and fishermen working together utilizing the same calibrated equipment and practices. "Best available science" must be used before a stock can be declared overfished. All management plans in which fishing mortality is reduced must define causes of declining fish populations from overfishing, from pollution and

habitat loss, from change in physical or natural environmental conditions that affect fish stocks, from predator, from unknown causes.

These recommendations when implemented would go a long way toward restoring trust and confidence in management systems which sometimes appears to be failing right before our eyes.

But now we would like to address more of the major recommendations. We propose that the advisory committee chair should have a vote on that species subcommittee and on the full Council on issues specific to the advisory committee. This will ensure the voice of the advisory committee is heard at Councils.

Additionally, we believe that the voice of fishermen would be heard even more strongly if fishermen on the Council are active commercial fishermen. Therefore, fishermen members must be elected by fishermen and people in the fishing industry.

Under the current system, the National Marine Fisheries Service is charged with interpreting the provisions of the SFA, issuing guidelines, gathering the data, preparing the stock assessments under the science centers, approving the fishery management plans and enforcing their provisions. What is needed now is to put some distance between NMFS and science centers so the two different functions of the agency are not forced into sharing the same political agenda and budget.

We also propose the creation of a totally independent national standard oversight panel which would monitor NMFS and Council regulations from the Department of Justice. The panel would report only to the appropriate secretary and with statute power to reject any proposal regulation that does not meet all of the standards. The panel would not evaluate the entire plan, they would only rule on the ten national standard provisions.

We further believe that management plans should encourage incentive, promote conservation instead of punitive measures. Consequently, there must be a compensation program established as a management tool and this compensation program must be in place before the fisheries close.

We will continue to build consensus to impact fishery management in the future. The cornerstone of this strategy will be the extension of the Sustainable Fisheries Act moratorium on ITQs. In our discussion we recognize the importance of the issue of bycatch, and we will work continuously to focus our efforts on this problem in order to develop a wider consensus.

In order to improve both safety and conservation, management plans utilizing days at sea limitation and daily trip quotas should allow fishing vessels to run the clock while tied to the dock.

Finally, the best input from the industry is of little value if adequate funding is not provided. In particular, research and monitoring should be given high priority. The fishermen agree that NMFS must execute observer coverage of commercial fishing vessel for the sector on any fishery where stock are declining.

Congress should specify adequate funding to establish best available science. As so, there should be funding for research.

We hope the recommendation that we're making here today will be part of this new reorganization of the Magnuson Act. And this has been a terrible experience for many of us. And fishermen feel like they've been treated unfairly and something precious has been

taken away. But they stand committed to work with you as they have for the last 23 years.

Thank you for the opportunity.

[The prepared statement of Ms. Sanfilippo follows:]

PREPARED STATEMENT OF ANGELA SANFILIPPO, PRESIDENT, GLOUCESTER FISHERMEN'S WIVES ASSOCIATION

Madame Chairperson and members of the Subcommittee, thank you for inviting me to testify on the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). I am Angela Sanfilippo, President of the Gloucester Fishermen's Wives Association (GFWA) and a member of the Board of Massachusetts Fishermen's Partnership (MFP). GFWA is a founding member of the MFP and I am here representing the Partnership consensus.

The Massachusetts Fishermen's Partnership (MFP) is an umbrella group consisting of 18 commercial fishing organizations representing all of the various gear sectors in Massachusetts. Our organization sponsors the Fishing Partnership Health Plan which provides health insurance for about 1500 persons. The MFP and its member organizations currently represent more than 3000 fishermen and their families.

For the past 4 months, the MFP has been engaged in a formal consensus building process to provide significant input into the Magnuson reauthorization legislation. The effort began when a group of 40 fishermen met at the New England Aquarium on January 10th, 2000 to set priorities and establish a task force. The task force met twice in February and produced a draft consensus report. The full group reconvened in March to review the draft report and all of the members have now had an opportunity to comment on the recommendations. The result is a formal document which contains 26 points of consensus agreed to by a large number of Massachusetts fishermen. It is that report which forms the core of today's presentation.

To summarize, all participants in this process share a common concern for a sustainable fishery. The fishermen developed a consensus to be partners with regulators in management and with scientists in research. In addition, they expressed a desire to be partners with the Coast Guard in enforcement. There was also a recognition of the need to redefine the role and organizational structure of the management councils and other regulatory bodies.

However, before we deal with reorganization, it is necessary to clarify and redefine some of the terms which have so often led to confusion and dissent about regulatory measures. First and foremost is the term *overfishing*. A strict adherence to the previous use of this term leads inescapably to the conclusion that all declines in fish stocks are due to overfishing; even in cases when other factors can be shown to be the primary cause (for example, the lobster die-off in Long Island Sound or pollution in the Hudson). This approach is equivalent to saying that the single cause of airplane crashes is overflying and that the passengers are always at fault. Not only is the characterization misleading, it precludes the investigation of the true cause of the crash, such as pilot error or mechanical failure. We are not saying that overfishing or overflying (when a plane is overloaded) cannot occasionally be the primary cause of a crash, merely that it should not be assumed to be the cause without additional evidence.

Other terms battered loosely about in sometimes-contradictory ways have been Maximum Sustainable Yield (MSY), healthy fishing communities and best available science. This terminology has led to widespread disillusionment with the management process and more than a few lawsuits.

Alternatively, we recommend the following new definitions.

1. *Overfishing* means that amount of fishing mortality, not including mortality or stock population declines from other causes (e.g. pollution or habitat loss, changes in physical or natural environmental conditions, predators, and unknown causes), which decrease spawning biomass to a stock level that results in decreasing stock population over time. Sometimes fishing mortality must be reduced in response to phenomena other than "overfishing," but management definitions should always make it clear when fishing is NOT causing declining stocks.

Maximum Sustainable Yield (MSY) should be dropped from the legislation and replaced by "Sustainable Yield" (SY) to reflect more realistic goals. It has been debated for years whether MSY is even possible to achieve for multiple species simultaneously; especially where there is a complex predator-prey relationship.

2. *Sustainable Yield*—shall be a range of fishing activity sufficient to maintain a sustainable fishery.

3. *Sustainable fishery*—means a fishery that maintains healthy fish stocks and a healthy fishing community.

4. *Healthy fish stocks*—mean populations of fish species that are biologically stable or growing in abundance and may include fish stocks that have changed their range or migratory patterns.

5. *Fishing community*—means U.S. vessels, crew, people, and related businesses who earn income as the result of the harvesting or processing of wild fish stocks.

6. *Healthy fishing community*—means a fishing community as defined above that maintains sustainable participation in U.S. fisheries and provides for the social, economic, and cultural needs of such community.

7. *Best Available Science*—means unbiased information based on data that:

—integrates current data that is less than 2 years old
—must be collected by both government and fishermen working together utilizing the same or calibrated equipment and practices
—must meet generally accepted standards with no less than 80 percent accuracy, defined by the Probability Distribution Function.

As a direct consequence of these new definitions, the following *New Requirements for Management Plans* are recommended:

- *Best Available Science* as defined above must be used before a stock can be declared "overfished."
- All management plans in which fishing mortality is reduced must define causes of declining fish populations:
  - from overfishing
  - from pollution or habitat loss
  - from changes in physical or natural environmental conditions that affect fish stocks
  - from predators
  - from unknown causes
- Data being used in fisheries management must be mailed out to interested parties no less than 30 working days prior to a meeting where the data will be used to make management decisions.

These recommendations, when implemented, would go a long way towards restoring trust and confidence in a management system which sometimes appears to be failing right before our eyes. But, now we would like to address some of the major problems under the current management organizational system.

The government of this country was founded on two basic principles: meaningful representation of all citizens and the separation of powers. Yet, the existing fisheries management system violates both of these fundamental precepts.

While it is true that most of the committees under the regional Councils have formed advisory panels, the recommendations of these panels carry no formal weight whatsoever. Their recommendations are more likely to be ignored than implemented and the outcome depends entirely on the whim of the committees. We propose that the Advisory Committee Chair shall have a vote on that species subcommittee and on the full Council on issues specific to that Advisory Committee. This will ensure that the voice of the Advisory Committee is heard at the Council level and that any dissenting opinions or alternative recommendations will be seriously considered during plan development and implementation.

Additionally, we believe that the voice of the fishermen will be heard even more strongly if fishermen on the Council are active commercial fishermen. Therefore, fishermen Council members must be elected by fishermen and people in the fishing industry.

This brings us back to the separation of powers issue. Under the current system, the National Marine Fisheries Service (NMFS) is charged with interpreting the provisions of the SFA, issuing guidelines, gathering the data, preparing the stock assessments (under the Science Centers), approving the Fishery Management Plans (FMPs) and enforcing their provisions. No single agency should be entrusted with being prosecutor, judge, jury and executioner.

In practice, the guidelines have unfairly become mandates, and the FMP's have become political footballs based on incomplete data and erroneous assumptions.

What is needed now is to put some distance between NMFS and the Science Centers so that the two different functions of the agency are not forced into sharing the same political agenda and budget. We recommend that the Science Centers remain under NOAA and continue to collect and analyze data just like the National Weather Service. Then, all of the permitting and regulatory functions of NMFS could be moved from the Department of Commerce to another Department such as Agriculture. This would guarantee a completely unbiased analysis and an uncontaminated database.

Furthermore, NMFS has previously stated that the 10 National Standards cannot all be met by the regulatory measures. Hence, they have taken it upon themselves to decide when the provisions are sufficiently met to warrant approval of a plan. This is similar to deciding which of the Ten Commandments one chooses to obey which can frequently lead to trouble. We do not believe that selective compliance is what Congress intended when it developed the National Standards. By properly addressing the issue of bycatch, for example National Standard 9, the management Councils would have the ability to further decrease discards. The present NMFS policy has proven to be the source of dozens of lawsuits and has seriously undermined the credibility of the agency.

We also propose the creation of a totally independent National Standards Oversight Panel which will monitor NMFS and Council regulations from the Department of Justice. The Panel will report only to the appropriate Secretary and will have statutory power to reject any proposed regulations that do not meet *all* of the National Standards. Unlike the Councils, no conflicts of interest will be permitted on the panel from environmentalists, fisheries agencies, or industry. Members of the panel will have term limits of no less than two years but will not be political appointees. The panel will not evaluate the entire plans. They will only rule on the 10 National Standards provisions.

We further believe that management plans should encourage incentives to promote conservation instead of punitive measures. Consequently, there must be a compensation program established as a management tool and this compensation program must be in place before a fishery closure.

The compensation program should be focused on fishermen because other sectors have other options available, while fishermen have none. Compensation should be confined to fishermen in the fishery that is closed as documented by logbooks. It might be linked to other research commitments such as days at sea compensation for collaborative research efforts.

We will continue to build consensus to impact fisheries management in the future. The cornerstone of this strategy will be the extension of the Sustainable Fisheries Act moratorium on ITQs. In our discussions, we recognized the importance of the issue of bycatch and we will continue to focus our efforts on this problem in order to develop a wider consensus.

In order to promote both safety and conservation, management plans utilizing days-at-sea limitations and daily/trip quotas should allow fishing vessels to run the clock while tied to the dock. Furthermore, management plans should promote quality instead of commodity as a national fisheries strategy to protect market share and the competitive advantage of family fishing fleets.

Finally, the best input from the industry is of little value if adequate funding is not provided. In particular, research and monitoring should be given a high priority. The fishermen are agreed that NMFS must execute observer coverage of commercial fishing vessels from that sector on any fishery where fish stocks are declining. Without these observers, the Fisheries Service is flying blind and is liable to take the wrong action at the wrong time resulting in a crash. There must be cooperative research funding for these observers and biologists. The research will be done by observers or biologists and fishermen, and will be funded by the federal government. Consensus included using collaborative research money available this year to immediately implement this recommendation in New England.

Also, there should be funding for gear selectivity research and the Saltonstall-Kennedy grant program should be re-designed to support fishing industry generated research AND not fund NMFS enforcement and administration.

Most importantly, Congress should specify adequate funding to establish "Best Available Science" as defined above for fisheries management. Without better scientific data there is little hope of restoring the fish stocks within the ten-year time frame which Congress has mandated.

In conclusion, please allow me to express my gratitude for your kind attention. The painstaking process we have endured these many months has unified commercial fishermen in Massachusetts in ways that are rarely seen in this industry. The fishermen are committed to seeing these recommendations put in place. They will

continue to work tirelessly to strengthen the system by engaging in every aspect of fisheries management. They desire to be a full partner in this undertaking.

The recommendations made by the MFP today which are not adopted in the Magnuson Reauthorization Process will not fade away. They will emerge again and again in different forms submitted by different groups. They will prevail because fishermen throughout the country will know that ultimately these proposals are good for the fish and the fishermen. They provide a beacon in the fog that permits a safe and soft landing and avoids a crash which leaves no survivors.

Senator SNOWE. Thank you, Ms. Sanfilippo.

Okay. I'd like to ask the panel—it seems that everybody has stated they're opposed to lifting the moratorium on the IFQs.

We're going to have a recess for a minute.

(Brief recess taken.)

Thank you very much. I'd like to explore the IFQs because I do think, obviously, it's going to be an issue before the reauthorization process, and I've heard various positions around the country. I know the regional chairmen of the management Councils unanimously support, lifting the moratorium, I gather to use as a tool Council by Council rather than having it federally mandated. But I'd like to have each of you give me your perspectives as to why it isn't a viable option for New England so I have a better understanding of the issues from your perspectives.

Mr. Sherman, let me begin with you.

Mr. SHERMAN. Yes, ma'am. Our—we are opposed to ITQs because of the fear that all of the wealth will be gathered in the end. People are pushed up against the wall. And I'm sure everyone knows this scenario. It's happened in Canada. It's happened in other places. That people who through regulation, whether excessive or not, have been pushed to a point economically where they're unable to, with the quota given to them, and there we go another problem is equity and allocation of quota, and they're forced to sell to larger interests and larger interests get larger and larger. And that's the problem that we find with it.

We are not unopposed to fishing quotas as a management tool if and only if they are distributed fairly and equitably, and that each traditional fisherman, each one who has a stake is given enough, allocated enough so that they can survive until the fishing stocks come back. And these quotas should only be year by year, and not carried on. The excess, if you do not catch your quota, the excess should not be carried on further. And then each quota will be assessed as the stock assessments go year by year. It is something that should be looked at as a tool, but only individual fishing quotas, not individual transferable quotas.

Senator SNOWE. Okay. Mr. Parker.

Mr. PARKER. Yeah. I did touch on this as I was speaking. And I think that the most important thing to remember is that the commercial fishermen here in New England do not trust ITQ or IFQ allocations. We're very fearful that ITQs or IFQs would be allocated based on historic landings as they have been done in many other places, which would reward those people who have grabbed the most fish in the past.

In my case, where I represent a group of people from small communities where traditional fisheries, a lot of people aren't able to fish right now. The groundfish are quite simply too far off-shore.

There's people clamming, doing other things. And those people would not be treated fairly in allocation.

I think that one of the most important things that we need to do is address some of the inequities that are going on right now with habitat and bycatch so that if we are going to look at ITQs or IFQs, it's looking at them with a balanced playing field for the future when everything is being considered and landings are more in check with those types of consideration. Thank you.

Senator SNOWE. Do you think that smaller operations would be eliminated by the larger fishing companies?

Mr. PARKER. The small in-shore fleet would be completely eliminated if they were allocated right now. There's no way that we can consider ITQs or IFQs right now. And I think——

Senator SNOWE. And at this time, you don't want the regional Councils to have that option. You want the federal moratorium on new IFQs to continue?

Mr. PARKER. We would like the moratorium to continue. We don't trust the system as it stands now. And I think that one of the problems here is that fishermen have been—we've been very narrow in our scope. We've been concentrating on small issues like bycatch, I mean, like dogfish or like groundfish, framework adjustments. We haven't had the time to organize and mobilize our thoughts, convey them to yourselves regarding IFQs and ITQs. I think that some of the people that have had that opportunity, people that are organized in their ways, have created the perception that there are commercial fishermen that are in favor of them. But if you look at this table, look at how many people are represented by Russell and myself and Angela. That's a vast number of the commercial fishermen in this region. And I think it's very important that we begin to convey this to you.

Senator SNOWE. Thank you. That will be one of the issues in this reauthorization process. So we appreciate it. And any more information regarding your views would be very helpful.

Mr. Cunningham.

Mr. CUNNINGHAM. Yes. My thoughts on it are—perhaps come from more the philosophic side which says when you establish these IFQs you have in fact incurred property rights on a common property resource. And from the philosophical standpoint I have a great deal of concern about that and what it means in the long-term and some of those concerns are as simple as that the general public's ultimate access to these resources may only be through the supermarket if it's carried to too great an extent.

Senator SNOWE. Mr. Weiss. Oh, yes, go right ahead.

Senator KERRY. But surely you don't accept the notion that the general public has unlimited access to a finite resource?

Mr. CUNNINGHAM. I do agree with that.

Senator KERRY. Okay. Well, then where do you get the balance? We're beginning to learn that we can't let as many people into our national parks as we do, at least in automobiles and off-terrain vehicles and things because we're going to destroy the parks. I mean, isn't there a relationship there?

Mr. CUNNINGHAM. Well, I think that there are certainly—and when I'm saying this I'm thinking of the New England area—I think that there are other options in terms of management consid-

erations that may not have been accepted by the industry, per se. I think that if you look at the, currently the general public's access to these resources are quite limited. Even the Council did some research on it and found that the recreational sport fishing impact on groundfish in New England was practically negligible and would not have any detrimental impact on rebuilding the resources.

Senator KERRY. We can pick up on that. Thank you.

Senator SNOWE. Okay. Mr. Weiss.

Mr. WEISS. Senator Snowe, I really am not tremendously well-versed in the ground fishery. I kind of concentrate on tuna fishery. But I would say, what little I know about these ITQ/IFQs, it seems if a lot of the issues that Mr. Parker and Mr. Sherman have problems with, I think a lot of those issues can probably be addressed, some of it which I know because I know some of the fishermen that belong to this organization who are not fishing right now, who are digging clams or whatever, but who have fished for 20 years. If I think that if their concerns about getting their fair share of whatever quota may be out there can be addressed. It seems to me—again, as an outsider really—that it probably wouldn't be the worst way to go in the long run.

Senator SNOWE. I agree with you on the spotter plane issue, and we'll attempt to address that. That is a major concern of mine and we hope that the agency will issue a rule. You're absolutely right on the issue of lawsuits. I think the agency is run by how best to defend against a lawsuit rather than good policy. I would be interested in your ideas on how we can avoid some of these lawsuits in the future. As I said, the agency has not issued a rule on spotter planes, so we will have to consider legislation.

Ms. Sanfilippo.

Ms. SANFILIPPO. Madam Chairwoman, the Massachusetts fishing community has been in existence for many years, in Gloucester, 375 years. Our community, a small community, and its existence is through the fishery. For the last 23 years we have suffered greatly. The fabric of our community has been ripped apart. And we believe in what we're doing in the fishing community. ITQs will just totally destroy that. And given what we've been going through and see how sometimes the allocation has been so unjust to fishermen, and when the days at sea were distributed there were many, many wrong things done. The fear of thinking of ITQs to the same people. We cannot accept that.

We believe that people in this country should enjoy fisheries. They should have opportunity. We have many regulations which will never open it up to everyone. We'll always be restricted to some people. Our young people need to know that if they ever dream to be fishermen, even if their family never fished, they should have that right. And I come from seven generations of fishermen, but I don't believe that I just reserve that right. We're humans. We have dreams and we should pursue them. To put the wealth in the hands of few, it's wrong. And we have dealt with the shift of the wealth for the last few years. I strongly believe that what we have seen in the last few years, it's a shift of the wealth from one group to another group. And we simply cannot allow that to happen. New England is very special for its little fishing commu-

nities, and we would like to keep it that way. And we hope that you will support us. Thank you.

Senator SNOWE. Thank you. Senator Kerry.

Senator KERRY. I'm listening very carefully to these thoughts about individual fishing quotas. I haven't made up my mind on them yet, just to be honest with everybody. I want to look at it very carefully. I want to think about it.

We seem to care more about taxi cabs than a finite resource called "fish" because we grant medallions for taxi cabs, and you have to buy a medallion to drive a taxi cab. You know, there's something out of whack here.

Alaska has been pretty smart about thinking about cooperatives and ways to manage their fisheries. Now, I share your concern, and I think you have a very legitimate fear of the consequences of transferability. We need to think these fears through together. There are legitimate fears about how these quotas might work. But in a sense, you're working today with that kind of individual quota. I mean, you're all operating with an individual fishing quota anyway, but you're doing it in a fairly inefficient way because of the days, the trips, you know, the way it's being measured. But you're limited in your catch. You're limited in the time you can fish. You're limited to fishing only in certain areas. These are all some kind of limits. It may be that if we think about this carefully together there's actually going to be more freedom as to when, how, what you choose to do under a quota program. I don't want to quit the discussion on quota programs yet. I think we all need to keep a dialogue going.

The cooperative concept, which has some limits on transferability is something that I think we ought to all look at carefully.

Enough said on that. I don't think we need to belabor it. But I was really interested, Mr. Sherman, in your testimony on another subject. You used some very strong language, and suggested that fishermen are being treated like criminals. I wanted to ask you a bit more about that. Give me some meat there. How so? And what can we do about it?

Mr. SHERMAN. Well, Senator, more or less I refer to the fact that often times when we come to the wharf we are boarded and surveilled. The Coast Guard and I—I'm not putting the blame or the onus on the Coast Guard. Certainly, the Coast Guard has saved my life on more than one occasion, and I'm very grateful. But often times some of the younger fellows have come aboard and more or less the atmosphere of it is that there's something automatically wrong because——

Senator KERRY. Sort of a presumption that you've broken the law and you feel——

Mr. SHERMAN. Yes, sir.

Senator KERRY. Yeah. So you feel besieged in that sort of enforcement process?

Mr. SHERMAN. Yes, sir, and perhaps it's because I do take out my fish at the Gloucester display auction, which is a very wonderful thing. And it's helped us a lot with our price structure, and it's enabled a lot of us smaller boats to stay in business. But it also performs—it's a great platform for surveillance and for things of that nature. And it seems that every second time that I come in and un-

load my catch that I have officers aboard, and even though I have no violation, sir, and haven't been found in violation, it's a repetitive process, and at times it's, frankly, quite intrusive.

Senator KERRY. I think that's a very fair comment. And I can sense how as an entrepreneur and individual out there you would feel that way. I think it's important for us to talk to the enforcement folks and see if we can't elicit a more cooperative atmosphere. I think your point is a good one.

Let me ask all of you a tough question. It's one that we really wrestle with within this whole fishery management structure. I've heard from some sectors here in New England as well as elsewhere in the country that people don't feel adequately represented on the Council. There's always this tension. Who's on? Who's off? Who gets to impact it and who doesn't? The New England Council currently has about eight commercial fishermen, two recreational fishermen, one environmentalist and then the Federal and State representatives. Now, often we hear people talk about the conflict of interest issue, that when it's so heavily weighted toward one sector you don't get adequate balance in the other. Each of you represents different sectors of commercial, recreational and environmental interests. Do each of you feel adequately represented on the Council? Is there anyone here who feels that the structure somehow is—that we need to think about the Council's structure at all?

Mr. CUNNINGHAM. Senator?

Senator KERRY. Yes.

Mr. CUNNINGHAM. I'd like to comment on that. I think certainly from the recreational industry there is a feeling of under-representation on the Council. And I don't have a suggestion as to what should be considered as a gauge, whether it is economic activity generated by the sectors, one of participation. I think that there are a number of gauges that you could measure that against. In any case you would find that the recreation sector has been underrepresented.

Senator KERRY. And a final question: Did the recusal provisions that we put into the 1996 Act work in terms of people with significant financial interest in harvesting, processing, marketing, etc., recusing themselves from decisions if they have a significant or predictable effect on any personal interest? Has that arisen?

Mr. SHERMAN. I've never seen it happen, sir.

Senator KERRY. Never seen it happen?

Mr. SHERMAN. I've never seen it happen. And actually, there are—I can say there's one member of the Council I believe that is directly paid by an environmental group. That's his job. That's his work. And is he going to vote any other way, sir? Is he going to see any other perspective? Not only that, I think if you look at the burden of regulation of small boat fishermen that we have borne the excessive burden of regulation. We don't have the means to access some of these off-shore stocks. And I know that the current situation is that these codfish stocks have aggregated along the shore and that it's necessary to perhaps close us down more than the offshore. But I beg to differ. And I think that also what was mentioned, the biomass of codfish has increased by 23 percent, I believe, is the figure. That in the last framework process there were four proposals, two of which were presented by industry and were

thrown out, and rightfully so because of lacking to meet the biological objectives. And I agree with that. I'm a member of the groundfish advisory panel, sir. But there were two others that were identical in every respect except one, and that was in the final additional conservation measures. One proposal, proposal option No. 1, was that everyone, every groundfish boat that prosecutes their fishery out of New England for every day that they stayed out fishing they'd stay a day ashore. So a large boat would be out for 10 days. And then he would stay ashore for 10 days. My boat is smaller. Perhaps I go for two days, sometimes only one. I would have to remain ashore for the next day.

The other option, option two, the only additional conservation measure there was that if the—half of the total allowable catch of codfish in the total Gulf of Maine was reached by July 28th, then a certain sector, which is Stellwagon Bank, where I prosecute and many of my associates and friends prosecute their business, would be closed down for an additional month. This area is also closed for five months already, Senator. Where I prosecute my business, out of the next 16 months, we have 10 months of closure facing us. And we are unable to access these other areas because of the age of our vessels, the size of our vessels. And also the size of our crew. And we see a disproportionate amount of problems here. We feel that there is a large body of codfish that are off-shore as well. Fellows are not reporting this. And I don't—and frankly, I don't blame them because they see the type of regulation that's been placed upon us onshore and they're scared to death that this regulation will extend to them. And so only through observer coverage and real-time data can this situation be remedied. And also with observer coverage and real-time data, sir——

Senator KERRY. You heard me ask for both. And I'm with you on that. We need to try to do that.

Mr. SHERMAN. Indeed, sir.

Senator KERRY. We need to try to do that.

Mr. SHERMAN. And we do appreciate it.

Senator KERRY. We're going to follow-up on this, and we don't have time now, obviously, to exhaust every part of it. We'll be having conversations with you to work through this. Let me join the chairwoman in saying, Peter, that we are on the spot. As we said to you before, we will get it done. And I think we will get it done.

Mr. CUNNINGHAM. Senator, if I could just make one quick comment on your question on the recusal and conflict of interest issue. I do believe that is an area that needs to be addressed in some fashion. I think that the current standard is not strict enough. I think on the other hand I'm familiar with what goes on here in Massachusetts being a member of the, in the past and recently reappointed to the Marine Fisheries Commission, that perhaps some of the regulations that they operate under would cause the New England Council system to grind to a total halt. But I think somewhere in the middle ground there is, in fact, a reasonable situation.

Senator KERRY. Thank you very much.

Senator SNOWE. Thank you. Senator Stevens.

Senator STEVENS. Well, this looks like a neighborhood fight, and this isn't my neighborhood. I think my area—I'm not going to ask you any questions because I really don't know enough about your

fisheries to get into it. But in my area we have I think been more innovative about in-shore off-shore. We had in-shore allocation and off-shore allocation. And we limited the in-shore boats to delivering fish to the on-shore processors and vice versa. We have worked up innovative ways to try and deal with the conflicts that you mentioned, but we still haven't found a way to get the good Lord to reproduce the fish in a steady way. And sometimes the crab wander off. And sometimes there are too many sea lions and sometimes there's too many storms and we just have too much fluctuation. I think that we're trying to use all sorts of methods. As I indicated, I have been opposed to what Mr. Cunningham said that the concept of adding a new level capital requirement for a fishery because it's a barrier to the next generation. Now you have to get a bigger boat. Now you have to get a permit. And then on top of that you have to get—by your allocation you've got three levels of capital requirements for a new generation to get involved in a fishery. And that seems to me to be very burdensome.

But where fisheries are failing and we have a couple close to failing—thank God we don't have any of our fisheries that are listed as endangered species. That's still right today, isn't it, Betty? (Pause.) What? Salmon, an endangered species? Oh, you mean down south? Don't mix us up with the Pacific now. We're the North Pacific, where we have the concepts. Well, the king crab is failing right now. And if we're not careful, it will become an endangered species. And it's the crab industry themselves that are coming forward with an IFQ plan or a co-op plan, I don't know which. But I do think that it's incumbent upon the people in the fishery, without regard to whether you're historical or not, to protect the species. And I don't see blocking out any mechanism to save the species, including IFQs. But I think that they ought to be the last resort. But we may be at the last resort as far as king crab are concerned.

I appreciate all your points of view. I just wish I'd hear a little bit more about protecting the species rather than protecting the heritage of the fisherman. Thank you.

Senator SNOWE. Thank you, Senator Stevens. And we want to thank all of you very much for being here today and expressing your points of view. Thank you.

We'll now proceed to the third panel. I'd like to welcome Frank Mirarchi, a commercial fisherman and vessel owner; Dr. Brian Rothschild, Director of the University of Massachusetts for Marine Science and Technology; Dr. Patrick Sullivan, a professor in the Department of Natural Resources at Cornell University; and Ms. Marjorie Mooney-Seus, manager of the conservation department for the New England Aquarium. We welcome all of you here today. I would like to remind our witnesses to please limit your testimony to five minutes.

Mr. Mirarchi, we will begin with you.

STATEMENT OF FRANK MIRARCHI, COMMERCIAL FISHERMAN AND VESSEL OWNER

Mr. MIRARCHI. Thank you, Senator. Good afternoon, Senators. My name is Frank Mirarchi. I'm a commercial fisherman from Scituate, Massachusetts. And the primary focus of my discussion

today will be cooperative research. I personally got into the business during the early 1990's to supplement declining fish income. My first job in cooperative research turned out to be one that had fisheries relevance working with discard mortality, calculations, working with researchers from the Massachusetts Division of Marine Fisheries and New England Aquarium. That work grew into environmental monitoring. Primarily looking at the Boston sewer outfall and looking at the impacts of the potential discharge on fish habitat as well as the oceanographic systems.

What I've learned from this type of work is something that's extremely satisfying to me, that is that fishermen have valuable skills beside killing fish. Fishermen are good at rigging, and fishermen are good at making things work. We've formed some wonderful partnerships in our work.

Speaking of making things work. Fishery management I don't believe is working terribly well. And one of the reasons, Senators, that I think that fishery management is failing to produce the result that we would like to see is the lack of high-resolution near-term data on stocks and fish and gear interactions. Basically, I believe the following: That NMFS stock assessments are good, but they do not give the regional Fishery Management Councils enough detail. As an example, presently we are forced to close 600 square nautical mile blocks in the Gulf of Maine to protect cod, as you've heard from the previous panels of witnesses. These closures are basically stifling the life blood from fishing communities while cod are only present in a small fraction of the areas closed. One solution is to use fishing vessels, which are much cheaper and give a higher resolution of data and local knowledge to complement, but not to replace the NMFS stock assessments.

Another example that I'd like to raise to you is that of bycatch. We must under the present dictates of the law conserve specific stocks. Basically what that means presently in New England is we must fish to the level which protects the weakest stock. It doesn't enable us to fulfill the mandate of maximum sustainable yield. A way out of this is to develop gear that's more selective. And a fine way to do this and one which is presently an ongoing process here in New England but needs to be strengthened is to use the fishermen's skills in conjunction with gear technologists from academia and from agencies who innovate new types of fishing gear which are more selective.

My third example, that of fish habitat. The definition of gear impact on essential fish habitat is not adequate. There is a pattern of fishing that is not obvious in the present definition which just assumes that fishing takes place uniformly across the available grounds. This isn't so. But how do we determine that? And a wonderful way is to put instrumentation on fishing boats which gives real-time information on where the fishing is taking place and exactly where these grounds are and focuses management's attention on areas of high impact and also identifies areas that are presently left fallow in a way to integrate it into a comprehensive potentially protected area management system.

These are only the examples that I've chosen to list to you today. There are many more, but I feel the biggest gain to be held, to be achieved here is the reestablishment of trust between scientists

and fishermen. There are just a few items that Congress needs to do to facilitate the development of these processes. One you've heard about today is the experimental fishing permit process which is long, cumbersome and tedious. It needs to be expedited.

Another is to remove impediments to cooperative research. Among those that have been identified are the difference in insurance coverages that are presently available to crews on fishing boats and workers on the shore side. Workers' comp versus the Jones Act.

Another is the mandated safety equipment. Often times the safety equipment on fishing boats is intended for fishermen. It's not adequate to cover shore-side workers that are transplanted temporarily onto fishing platforms. In order to do this, there needs to be a funding source. You know, basically trying to boot strap many of these operations. And some sort of a loan program perhaps to provide safety equipment which is mandated by Coast Guard safety regulations will be extremely helpful.

One way to get at this is to look at a long-term funding program. Emergency aid linkage is a fine start, but I don't think it's the final solution. I look at that evolving eventually into a subsidy. I don't really think subsidization is an appropriate way to conduct sustainable fisheries. I look at good conservation as a good business decision. I look to the future after this initial stage is complete at a cooperative research program that runs off incentives such as tax credit or tax-deferred funds. I look at point-of-service fees to fund programs like domestic observers.

And finally I would advocate the opportunity to allow—fishermen are becoming more directed working partners in the venture of developing and rebuilding sustainable fisheries. And I look to this final link at the development of a rights-based system which touches on your issue earlier of lifting of the ITQ moratorium. Rights-based fishing is not necessarily totally ITQs, but it does give fishermen property rights delivering resources, which basically I see as an extricable component—an inextricable component—excuse me—of a management system that rewards conservation.

So for that reason, I would advocate that the Congress consider lifting the restriction on ITQs and giving the option of imposing programs to the local decision-making authorities of the regional fishermen and fisheries management Councils. Thank you.

[The prepared statement of Mr. Mirarchi follows:]

PREPARED STATEMENT OF FRANK MIRARCHI,
COMMERCIAL FISHERMAN AND VESSEL OWNER

Good morning Madame Chairman, Senators, and Committee Staff. My name is Frank Mirarchi. I am a commercial fisherman from Massachusetts. My son Andrew and I operate a 62 ft. dragger out of Scituate.

I have fished for 37 years. Andrew has virtually grown to adulthood aboard our boat. Today he is an invaluable partner in a family business. His is the face of tomorrow's fisherman.

My town, as are most small New England ports, is dominated by such family centered fishing businesses. Two generation boats are commonplace.

It is now nearly 25 years since Congress declared an EEZ in our coastal waters. I clearly recall the excitement and sense of opportunity which prevailed in those days.

Unfortunately as I speak before you today I must report that the opportunity remains largely unfulfilled. We built new boats, adopted new technologies, and supplied new markets. Unfortunately, as a nation, we're heedless of the finite and frag-

ile nature of marine resources, ecosystems, and habitats. We practiced the philosophical error articulated by Thomas Huxley in the late 19th Century—the sea is so vast our boats are so small therefore our fisheries have no discernible impact.

In the intervening decades unprecedented change have reshaped our fisheries. Open access is no longer an unchallenged right. Intricate rules dictate almost every facet of our activities from catches to gear characteristics to reporting standards. Despite this, success remains elusive with Congress now being asked to provide emergency financial aid to impacted fishermen on a regular basis.

Does this mean that "sustainable fishing" is an oxymoron? After years of observation and reflection my answer is a resounding "No."

Since the earliest application of technology to artisinal fishing the guiding philosophy has been "more . . . quicker and cheaper." The cost of this premise only became apparent when biological failure finally resulted in economic dislocation.

Magnuson-Stevens is forcing us to consider external costs as an integral part of management. This is a good thing but one which quickly makes us realize we simply do not have answers to many of the most pertinent questions. Here are some examples:

(1) The Northeast Fisheries Science Center in Woods Hole, MA provides some of the best stock assessments available. Their trawl survey produces an index of abundance which is a reliable barometer of biomass.

However, simply knowing the abundance of a stock is no longer sufficient information. Fishing takes place at a different spatial scale than survey work. Due to lack of finer resolution data we are compelled to close 600 square nautical mile blocks in the Gulf of Maine to suppress the catch of cod which may occur in only a small fraction of each area.

(2) The catch of non-targeted species, known as a bycatch, used to be a nuisance to fishermen culling catches. Now we are recognizing that bycatch mortality is a significant cost of fishing.

The development of more discrete fishing gear, known as conservation engineering, is in its infancy. Devices such as the Nordmore Grate and turtle excluders in shrimp trawls are only the first wave of this technology. How can we continue to improve the efficiency and selectivity of fishing gear?

(3) The impact of fishing operations on fish habitat has only recently become an issue. How serious is the impact? If it is significant, is it more appropriate to modify the offending practices or to create protected areas where fish are unmolested? Perhaps it is more efficient to open areas on a rotational basis, harvesting a "crop" and letting the area remain fallow until another grows.

These are complex and vexatious questions which elude easy answers. Only through the combination of technology and analytical procedures will we be able to unravel the enigmas which still prevent fulfillment of the vision of the framers of Magnuson.

It is truly ironic that a provision in an emergency assistance appropriation may become the catalyst which topples a quarter century of inertia.

The use of fishermen and fishing boats as resources in research is nothing new. Oil companies often turn to fishermen as sources of skilled labor. Ten years ago, faced with declining catches, I began chartering my boat to scientists from the New England Aquarium and the Massachusetts Division of Marine Fisheries to obtain supplementary revenue.

Today companies such as CR Environmental, Inc. of Falmouth, MA are regularly providing fishing boats for tasks as diverse as baseline monitoring at the Boston sewer outfall and debris recovery at the TWA Flight 800 crash site.

I believe that the skills and knowledge of America's commercial fishermen represent a significant underexploited resource. I wish to be on record as endorsing their inclusion as collaborators in applied research aimed at obtaining answers to questions such as I have earlier identified.

I furthermore assert that in addition to the technical skills and detailed knowledge which fishermen can provide there is another intangible but potentially valuable benefit. The schism which has developed between fishermen and fishery regulators and scientists must be healed. How tragic if fishery management degenerates into a lawyer's game of convoluted rules and sophisticated evasions. The bonds of trust can be restored in no better way than working together in the planning and execution of collaborative research projects.

In closing I would like to offer some suggestions where legislative action could facilitate the growth of this important and overlooked component of sound fishery policy.

(1) Streamline NMFS' permitting process—experimental fishery permits, required for nonconforming gear now require extensive reviews which could well be modified without significant impact.

(2) Develop ways to overcome regulatory impediments—issues such as workplace safety standards and availability of insurance coverage must be considered. An example is a loan program to enable purchase of additional safety and survival equipment.

(3) Develop a durable, long term funding mechanism. While using emergency assistance funding as an initial source is appropriate, the need for research will persist long after the current crisis passes. I believe applied research to be an investment which generates positive benefits to the nation. There needs to be debate concerning the source of funding as well as the development of a distribution process.

Fish are a renewable resource. We would be rightfully indignant to learn that agriculture was being conducted without attention to practices which would compromise its sustainability. We can accept no less of fishing.

Thank you for the opportunity to present my views today.

Senator SNOWE. Thank you. Dr. Rothschild.

STATEMENT OF DR. BRIAN ROTHSCHILD, DEAN OF THE GRADUATE SCHOOL AND DIRECTOR, CENTER FOR MARINE SCIENCE AND TECHNOLOGY, UNIVERSITY OF MASSACHUSETTS DARTMOUTH

Dr. ROTHSCHILD. Thank you very much for having me here, Madam Chairwoman, Senator Kerry, Senator Stevens. I've been working in fisheries, in most of the major fisheries in the United States for about 47 years. I'm also working on a joint program with the University of Alaska. And I do have my master's degree from the University of Maine.

The central technical concept of the Act, overfishing, is difficult to define. It is difficult to use as a practical criterion. It should be replaced by a criterion that is simpler and more practical. Levels of optimal fishing should be set by optimization techniques that are used in many industries today. Multiple species catch levels and bycatch should be involved in the calculations. Reasonable thresholds on minimum stock abundance should be maintained.

Having said that, the concept of rebuilding is also difficult to define and open to arbitrary interpretation. More easily defined targets should replace rebuilding targets. Maintaining optimal levels of catch, that is fishing mortality, would certainly replace the need for rebuilding stocks. Not all declines in fish stocks are the result of overfishing or the result of fishing. Declines in fish stocks are sometimes caused by environmental change in the ocean. Significant societal costs occur when declines in fish stocks that result from the environment are attributed to fishing.

It is evident that innovations in fishery management can only arise through considerably intensified data collection on fish population abundance obtained directly from the fishing fleets. It is only through a very detailed analysis of day-to-day fishing records that stock abundances can be regularly monitored and the power of the fishery to remove fish can be determined. It is only through the simultaneous monitoring of fish abundance and the environment that the effects of fishing can be separated from the effect of the environment.

Not keeping track on a daily or weekly basis of stock abundance and environment is analogous to a department store owner who checks sales and inventory only once a year or once every two years.

In order to implement research changes, it would be necessary to rely to a much greater degree on observations made directly by

fishermen. In fact, such a program is required if we are going to collect the data that are needed to develop a monitoring system that has the confidence of all interested parties in a fishery management program. In addition, involving fishermen to a greater degree in the process increases the legitimacy of the data and the entire process.

We can conceive of a new approach to management that minimizes an emphasis on the simple question of whether or not a stock is overfished or not, especially since the definitions are difficult to define. We should maintain a stock at some level that is reasonable for the industry and does not drop below some flexible floor. We think that this is the most cost-effective approach for management.

We also need to experiment with various combinations of effort and mixes of species remembering that the overfishing definitions relate to single species. We need to view management in much more flexible context. We should, in fact, choose an adaptive management approach where we try an approach and watch whether the approach is working and then make iterative corrections as necessary.

We're already working on these approaches with the Massachusetts Fisheries Recovery Commission of which I am the co-chairman. The commission instituted through the legislative efforts of Senator Montigny and Senator Bruce Tarr has developed a plan involving high-resolution surveys, comparisons of fishing boat surveys with research boat surveys and stock identification. Possible sentinel or experimental fisheries will be implemented by the Massachusetts Division of Marine Fisheries and the University of Massachusetts Graduate School of Marine Sciences Technology, and we've begun to issue prototype forecasts of the ocean environment through NASA funding which we're working on jointly with the University of Alaska. Funding for the fishermen to cooperate in this program is facilitated to a great degree by Senator Kerry.

Another example of cooperative management that has produced spectacular results is working together with the scallop industry in New Bedford and the National Marine Fisheries Service with some support from NASA to survey the scallop areas. Very briefly, this will result in $100 million of new product in two years pushing New Bedford into probably the number one economic fishing city in the U.S.

To sum up, in my view it is time to retool the Magnuson-Stevens Act to put in perspective the issue of overfishing. We have to realize that the definition of "overfishing" is really very soft. Rather we should develop alternative management criteria of keeping the stock above some flexible threshold level. Cooperative research would, in fact, be necessary to maintain the appropriate data stream. At the end of the day, this would be much more cost effective than the present method, particularly with fuller use of computers and the information superhighway. We need to put in place a task force to work out the details of the innovations. The task force should draw heavily on the expertise of the fisheries service and academia and, of course, the fishermen. Thank you.

[The prepared statement of Dr. Rothschild follows:]

PREPARED STATEMENT OF DR. BRIAN ROTHSCHILD, DEAN OF THE GRADUATE SCHOOL AND DIRECTOR, CENTER FOR MARINE SCIENCE AND TECHNOLOGY, UNIVERSITY OF MASSACHUSETTS DARTMOUTH

My name is Brian J. Rothschild. I am the Dean of the Graduate School of Marine Sciences and Technology, University of Massachusetts System and the Director of the Center for Marine Science and Technology, University of Massachusetts Dartmouth. I have been working in fisheries for 47 years. I have been involved in fishery research and management of most of the major fisheries in the U.S.

I am pleased to provide you with recommendations to change the Magnuson-Stevens Act, including cooperative research and science issues.

Any recommendations for changing the Magnuson-Stevens Act depends on a) whether or not the Nation is realizing the full potential of its fishery resources, and b) the extent to which any shortfalls in performance results from the language of the Act itself, its interpretation via guidelines, or its implementation by DOC.

It seems fair to say that the Act is not perceived as its achieving its intended goal.

Addressing the perceptions involves a wide range of issues, many of which are complex. However, a key issue involves science and cooperative research. My theme is that

- The central technical concept in the Act, "overfishing" is difficult to define in a non-arbitrary way. It is difficult to use as a practical criterion. It should be replaced by a criterion that is simpler and more practical. The levels of optimal fishing should be set by optimization techniques widely used by many industries. Multiple species catch levels and bycatch should be optimized, and reasonable thresholds on minimum stock abundance should be maintained.
- The concept of rebuilding is logically difficult to define and also open to arbitrary interpretation. More easily defined and practical targets should replace it. Maintaining optimal levels of catch (i.e., fishing mortality) suppresses the need for rebuilding stocks.
- Not all declines in fish stocks are the result of fishing. Declines in fish stocks are sometimes caused by environmental changes in the ocean. Significant societal costs occur when declines in fish stocks that result from the environment are attributed to fishing.
- Innovations in management approaches are necessary to develop non-arbitrary and participatory management measures. It is not to the fishermen's advantage to keep stocks at minimal levels.
- It is evident that the necessary innovations in fishery management can only arise through considerably intensified data collection on fish-population-abundance obtained directly from the fishing fleet. It is only through very detailed analysis of day-to-day fishing records that stock abundances can be regularly monitored and the power of the fishery to remove fish is determined.
- It is only through the simultaneous monitoring of fish abundance and the environment that the effects of fishing can be separated with the effects of the environment. Not keeping track on a daily or weekly basis of stock abundance and the environment is analogous to a department store owner who checks sales and inventory only once a year or once every two years and ignores consumer preferences.
- In order to implement these research changes, it will be necessary to rely to a much greater degree on observations made directly by fishermen. In fact, such a program is required if we are going to collect the data that are needed to develop a monitoring system that has the confidence of all interested parties in fishery management. In addition, involving to a greater degree fishermen in the process increases the legitimacy of the data and entire process.

To highlight these points, consider the definition of biological overfishing in the technical literature. In this literature there are three different definitions of overfishing: production overfishing, stock overfishing, and recruitment overfishing. The definitions are different. They are reasonable theoretical concepts, but they are generally not supported by actual data—that is to say there is considerable variability between the actual data and theoretical predictions. Furthermore, the technical theories upon which definitions of overfishing are built are really single-species theories. This means that a non-overfishing definition for one species may necessitate overfishing another species.

It is interesting to observe as well that only one of these theories—within reasonable bounds—has a general conservation impact. This is the recruitment overfishing

theory. But this is the aspect of overfishing that is least known and the most difficult to understand. The theory of recruitment is by far the least understood aspect of fisheries science and still the subject of intense research around the world.

All of this leads, of course, to the fact that if we are unclear as to the precise definition and application of overfishing then its use creates the perception of faulty management. (In fact, in some cases because it is not known whether or not a stock is overfished, proxies are developed in the guidelines to determine whether a stock is overfished.) An analysis by FAO of all fish stocks under its jurisdiction as to whether they were overfished or not led to considerable controversy because the definitions were not clear. All of this leads, of course, to the fact that if we are unclear about our definition of overfishing, then how can we be clear about rebuilding stocks or even imputing that stocks may be overfished in the near future.

So, it should be clear that whether or not a stock is declared to be overfished is not a clearly honed concept. It is, in general, more or less an art that is subject to a tremendous scope of interpretation. Because there is such a wide scope of interpretation, the issues become contentious and this leads to the perception that stocks are not managed in the best possible way. It really places scientists in the unfortunate and counterproductive position of declaring whether or not a stock is overfished while it is really the councils and the managers who need to and are better prepared to make these decisions.

Absent of guidelines developed by SOC on theoretical concepts that are shaky when put into practice, how would we know whether or not a stock is overfished—how would we know how to rebuild a stock—how would we know whether or not to take draconian measures limiting catch and how would we know how to fine-tune effort limitations regarding plus or minus a small number of days that would have a big impact; how would we know that in fact we were addressing the right problem? In other words, a decline in stock abundance could as easily relate not to fishing or overfishing but to degradation of the nursery habitat, or to natural changes. In fact, a decline in a stock might very well be the consequence of a management regulation that protects one species at the expense of another. The relation of dogfish and groundfish in New England and the mid-Atlantic are good examples. So is the relation between herring/mackerel and groundfish.

All of this may sound like "because we don't know, let's do nothing." It may also sound like "fishing has minimal or no effects on the stock." Neither of these assertions is intended. Rather, we hope to move away from over-simplified criteria and take into account, much more intensively, data from actual fishing operations.

As suggested above, it is possible to conceive of a new approach to management where we would minimize an emphasis on whether or not a stock is overfished or not especially since the definitions are difficult and attempt to maintain a stock at some level that is reasonable for the industry and does not drop below some flexible floor. We also need to experiment with various combinations of effort and mixes of species. We need to view management in a much more flexible context. We should, in fact, use an adaptive management approach where we try an approach and watch whether the approach is working and then make iterative corrections as necessary.

How would such an approach be implemented? It is necessary to begin to think that we need a much more intensive virtually real-time monitoring of the stocks and the catch and the ocean environment. We have to rely to a much greater extent on the fishing fleet to provide data on the status of the stocks and the condition of the ocean environment.

This is where we need to revise our ideas on implementation. We need to rely to a much greater degree on cooperative research and sampling of the catch. This implies that for most fishing trips the fishermen would be responsible for filling out detailed logs that indicate the abundance of fish and the condition of the ocean environment; that the catches would be sampled at dockside and the logs collected; that the research establishment would place the highest priority on the analysis and quick turn around of information; and that the management team would warn if the stock exceeded bounds.

To some extent, these ideas may seem almost heretical, however, they are bound to meet with success. Not only will they provide better information, both the fishing and conservation groups will be more agreeable with the information because they will have participated in the process.

We are already working on involving fishermen in data collection. The Massachusetts Fisheries Recovery Commission, instituted through the legislative efforts of Senators Mark Montigny and Bruce Tarr, has developed a plan involving high-resolution surveys, comparisons of fishing boat efficiency with research boat efficiency, and stock identification. Possible sentinel fisheries is being implemented by the Massachusetts Division of Fish and Game and the University of Massachusetts Graduate School of Marine Sciences and Technology (CMAST), and we have begun

to issue prototype forecasts of the ocean environment through NASA funding. Funding for the fishermen to cooperate on this program has been facilitated by Senator Kerry.

Another example of cooperative management that has produced spectacular results is that we worked together with the scallop industry in New Bedford, NMFS, and VIMS, with some support from NASA, to survey the scallop areas in the closed portion of Georges Bank. Our work and the help of Senator Kennedy and Congressman Frank resulted in $35 million ex-vessel in scallops last year and probably $70 million this year!

To sum up, in my view it is time to retool the Magnuson-Stevens Act to put in perspective the issue of overfishing. We have to realize that the definition of overfishing is really very soft. Rather, we should develop alternative management criteria of keeping the stock above some flexible threshold level. Cooperative research would, in fact, be necessary to maintain the appropriate data stream. At the end of the day, this would be much more cost effective than the present method, particularly with fuller use of computers and the information super highway. We need to put in place a task force to work out the details of the innovations. This task force should draw upon the expertise of NMFS and academia.

Senator SNOWE. Thank you, Dr. Rothschild.

Dr. Sullivan.

STATEMENT OF DR. PATRICK SULLIVAN, PROFESSOR, DEPARTMENT OF NATURAL RESOURCES, CORNELL UNIVERSITY

Dr. SULLIVAN. Thank you, Madam Chair and Committee members. My name is Pat Sullivan, and I'm on the faculty, department of natural resources at Cornell University. And I've been there for about a year and a half. Prior to that, I spent 10 years as a population dynamist with the International Pacific Halibut Commission. At that time I was on the statistical and scientific committee for the Pacific Fisheries Management Council. And currently I'm serving on the same committee for the New England Fishery Management Council.

You have my written statement. And I brought a supplemental material. This handbook put out by the Heinz Center called "Reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act." And you probably are already aware of it, but I thought I'd bring it to your attention. Again, I thought it was very good.

Reauthorization of the Magnuson-Stevens Fisheries Conservation Act——

Senator STEVENS. And who put it out?

Dr. SULLIVAN. John Heinz Center. So I would like to summarize my statement today by relating to you a story. It's a story about my 12-year-old son who collects Pokemon cards. My son and his friends were playing this game the other night which is made up of these mythical monsters with special powers that can combat one another. And I noticed they were doing something different. They were rolling dice to see who would go first to determine the power of the Pokemon card and who would get to go first. You see, each boy has his own set of cards, and so if they each play the game according to the conventional rules, the same boy would win each time as determined by the cards he owns. By adding this little bit of chance, it made it less clear who would win and thus made the game more interesting and challenging.

Obviously, the strategies in a game of chance are different than a game where the outcome is determined. I guess the idea in tell-

ing you this story is to convey to you a point that fishing and fisheries management are games of chance. The system is complex, and there's a lot at stake. My impression is that we are playing this game under conventional rules, not taking into account that the system has a random element to it, and should affect the strategies for playing the game.

First, we must acknowledge that there are risks, even when we have good information. And second, having more information helps us reduce the risk, even if we cannot eliminate it. The conventional maximum sustainable yield, MSY theory of several decades ago I believe is too risky to employ by itself in this complex and uncertain marine environment. We need to develop more robust rules that take into account our uncertainty.

Furthermore, on a positive side, I believe, both fishery scientists and fishermen are getting better at gathering and analyzing information. Furthermore, the information they are gathering is from different perspectives reflecting differences in scale, experience and objectives. Unfortunately, these differences have led to problems in communication between these two groups. But one should recognize that these reflect actually complementary data sources that if pooled could lead to greater understanding of our fisheries and of the ecosystem. I think the benefit to the Nation would be great if fishermen and scientists could learn to better communicate and share this information. Thank you.

[The prepared statement of Dr. Sullivan follows:]

PREPARED STATEMENT OF DR. PATRICK SULLIVAN, PROFESSOR, DEPARTMENT OF NATURAL RESOURCES, CORNELL UNIVERSITY

Our marine ecosystems are complex and dynamic. They represent an important source of food, commerce, recreation, scientific inspiration, and culture. What we don't often realize when we attempt to manage these systems is that they are quite variable and not readily subject to hard and fast rules of oversight. The conventional maximum sustainable yield (MSY) theory of several decades ago is too risky to employ in this uncertain environment. It was developed with the concept of optimal production in a controlled setting. The control we exercise in the marine environment is by no means complete. There is an element of chance present not only in how populations change from year to year, but also in how we track and interact with those changes. We should try to understand, first and foremost, that there will always be risk in decision-making in fisheries, even when the best available information is used. But we should also recognize that increasing the information we have at hand for decision-making reduces our risk. We must develop more robust management objectives that take into account this uncertainty. And we need to adjust our expectations to recognize the multiple uses that are being made of these resources. What is positive for decision makers and stakeholders is that both fisheries scientists and fishermen are getting better at gathering and analyzing information about marine ecosystems. What is interesting, but often goes unnoticed, is that the information fishermen and scientists each gather reflects differences in perspective, in scale, in experience, and in value. And while these differences have led to problems in communication between scientists and fishermen, to the consternation of many managers, one should recognize that complementary sources of information are reflected in these perspectives and if combined could lead to a greater understanding of our fisheries and of marine ecosystems in general. I think the benefit to the nation would be great if fishermen and scientists could learn to better communicate and share this valuable information.

How might this be brought about? I think a dialogue needs to take place between stakeholders, fishermen in particular, and fisheries and marine scientists. The dialogue needs to take place in a neutral setting and outside of the contentious arena surrounding quota setting. In this regard the handbook "Reauthorizing the Magnuson-Stevens Fishery Conservation and Management Act" produced by the H. John Heinz III Center under a program managed by Dr. Susan Hanna from Oregon State

University provides a starting point and identifies the set of relevant issues and questions needed for such a dialogue to take place. I've included this document as part of my supplemental materials.*

A lot has been made out of the idea of fishermen collecting data in collaboration with scientists. I have had some good experiences collaborating with fishermen while working with the International Pacific Halibut Commission on board longline fishing vessels chartered for halibut survey work. Such collaborations facilitated data gathering at reduced costs to the IPHC, which owns no survey vessels, and also provided a venue for fishermen and scientists like myself to share ideas and gain perspective from one another. I think such associations should be promoted when possible, but it also should be recognized that not all data can be collected in this fashion. Longline fishing effort tends to be gear specific and so can be controlled from vessel to vessel, whereas trawling effort used to assess many fisheries is a function not only of gear, but of towing speed, engine capacity, and vessel size, making vessel-to-vessel standardization difficult. This is why it is appropriate for the National Marine Fisheries Service (NMFS) to use their own research vessels for standardized trawl surveys for fish stock assessments in the Pacific and the Atlantic. Nevertheless, there still remains many opportunities for collaborative research including having fishermen on board NMFS survey vessels, having NMFS and other marine scientists on board commercial and recreational fishing vessels, and encouraging the development of special collaborative projects designed to test assumptions upon which stock assessment procedures are built. In particular, harvest data from commercial and recreational fishermen may be highly informative provided trust can be maintained between fishermen and the management agency and provided a high level of quality control is established. Technological innovations such as computerized logbooks, satellite vessel monitoring systems, and acoustic data collection are all likely to improve the precision and accuracy of data gathered by fishing vessels, and it would be a shame not to anticipate and make use of this.

In conclusion let me stress that there are a number of issues that I have not been able to touch upon here that need to be addressed during reauthorization including: problems associated with overfishing, capacity reduction, and bycatch; the usefulness of individual vessel quotas for some fisheries; and the need for social and economic data to improve fisheries management. For a good overview of these issues please refer to the recent marine fisheries reviews conducted by the National Research Council (NRC 1998a, 1998b, 1999a, 1999b). The greatest need, in my opinion, is for good information and the ability to make wise use of it. Good communication among all parties is essential to this goal.

National Research Council. 1998a. Improving Fish Stock Assessments. National Academy Press, Washington, D.C.
National Research Council. 1998b. Review of Northeast Fishery Stock Assessments. National Academy Press, Washington, D.C.
National Research Council. 1999a. Sustaining Marine Fisheries. National Academy Press, Washington, D.C.
National Research Council. 1999b. Sharing the Fish: Toward a National Policy on Individual Fishing Quotas. National Academy Press, Washington, D.C.

Senator SNOWE. Thank you very much, Dr. Sullivan.

Ms. Mooney-Seus.

STATEMENT OF MARJORIE MOONEY-SEUS, MANAGER, CONSERVATION DEPARTMENT, NEW ENGLAND AQUARIUM

Ms. MOONEY-SEUS. Good afternoon, Madame Chairwoman, Senator Kerry and Senator Stevens. My name is Marjorie Mooney-Seus. I manage the conservation department at the New England Aquarium. And I'm going to try to summarize my remarks to keep them short.

Thank you for the opportunity to testify today on the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act. I want to point out that with the passage of the Sustainable Fisheries Act three and a half or almost four years ago, I think it laid the groundwork toward ecosystem management, par-

*The information referred to has been retained in the Subcommittee files.

ticularly with two mandates, the essential fish habitat mandate, and the efforts to reduce bycatch. And we ought to recognize that the road to ecosystem management is a long-term commitment and a long-term process. So we need to view the Magnuson-Stevens Act as a work in progress. And I do think over the last several years there has been some progress. One example, in particular, is with respect to the essential fish habitat designations. This represents a comprehensive attempt to look at things other than just fishing, to look at things like non-point and point-source pollution and to consider those things with respect to the health of fish stocks.

I know there's been criticism that the designations are fairly broad and having served as a technical advisor to the habitat committee for the New England Fishery Management Council for the past two and a half years, I've looked at the data. And we just don't have the level of information that we need to determine what are really critical areas to maintain healthy fish stocks at this stage of the game. As a result, having broad designations makes sense initially, and then over the long-term making efforts to refine those designations is the prudent course of action.

Another strength of the essential fish habitat component of Magnuson is the consultation process, specifically section 305(B)(2). This is a key component of EFH because it promotes open exchange of information between Federal agencies about activities that could affect fish habitat. There really isn't any other mechanism in place to promote this open dialogue.

In moving forward with reauthorization, there are some things that we certainly could do to improve the Act, although I don't think it needs substantial overhauling. There needs to be a clear mandate from Congress to the National Marine Fisheries Service and to the Councils to continue to refine essential fish habitat designations. In particular, to start to define habitat areas of particular concern. And at least we need to maintain the integrity, if not strengthen, section 305(B)(2), the consultation process.

In the area of bycatch reduction, renewed regulatory language should be adopted to provide incentives for fishermen to avoid bycatch.

And most importantly, we need to promote collaborative research. That's going to allow us to do a lot of things: gather important information that we need to begin mapping and refining essential fish habitat; determine the amount, the type and the disposition of the bycatch and the bycatch mortality in various fisheries; address bycatch through gear modification and changing fishing methodology; and conduct long-term monitoring programs to assess the health of ecosystem.

Fishermen can clearly be able partners in this process. They know how to fish. They know where to fish. They know a lot about species co-occurrence, and they've been real innovators in a number of fisheries at reducing bycatch.

Toward this end, I think in section 2(A)(8), language should be added to recognize the value of partnering with various stakeholders to conduct collaborative research. In section 404(B) language should be modified to make it clear that stakeholders should be involved in the strategic planning process for research. If they're involved in the strategic planning process, they're more likely to

support monitoring programs, and ultimately the management measures that are put in place.

The New England Fishery Management Council's research steering committee, has taken a really positive step toward strategic planning in defining some priority areas for research. In moving forward, we need guidance from Congress to encourage the Council and others to look at ecosystem questions and make that a high priority.

We need, again, Federal investment in collaborative research and long-term monitoring and in institutions that promote collaborative research. The Canadian Sentinel Fisheries model is a great model that you've heard a little bit about where fishermen are actually involved in fishery-dependent surveys and they collect data. And, that data is actually used in stock assessments.

We also must ensure that there's adequate funding for enabling technologies like vessel monitoring systems for real-time reporting and for upgrading vessel monitoring systems data management capabilities.

Along with research, we need to make sure that there are complimentary management directives, so I think we should add language to section 305 calling for the establishment of ecosystem management plans.

Two last points. We need to complement collaborative research with a Federal observer program. And last, we must work more closely with our neighbor countries, Mexico and Canada, to share information, possibly conduct joint stock assessments and start to look at how we can manage shared resources more effectively.

The New England Fishery Management Council has done something exciting. They've laid the groundwork for that in the future. They are looking at developing a frame of reference for three principle groundfish stocks. This type of effort should be encouraged to better manage and conduct research on trans-boundary and highly migratory fish species. Thank you.

[The prepared statement of Ms. Mooney-Seus follows:]

PREPARED STATEMENT OF MARJORIE MOONEY-SEUS, MANAGER, CONSERVATION DEPARTMENT, NEW ENGLAND AQUARIUM

Good morning Madame Chairman and Members of the Subcommittee, my name is Marjorie Mooney-Seus. I am the manager of the New England Aquarium Conservation Department, a non-profit organization with over 1.3 million visitors each year. Our organization is dedicated to promote, protect and restore the aquatic environment through education, conservation and research.

The New England Aquarium like more than 80 other organizations across the country is a member of the Marine Fish Conservation Network because we support the basic premise of the Network, that it represents a diverse group of stakeholders working to conserve and promote the long-term sustainability of marine fish.

I personally have worked closely with the fishing industry, government agencies, members of the academic research community and environmental organizations over the past several years on regional and international fisheries issues. I appreciate this opportunity to speak before you on the reauthorization of the Magnuson-Stevens Act.

In my testimony, I will focus on what has been accomplished with the passage of the Sustainable Fisheries Act (SFA) in 1996 and what more needs to be done to strengthen future fisheries management in the following areas: Essential Fish Habitat designations; bycatch reduction; collaborative research and adoption of ecosystem-based principles for research and management; expanded observer coverage; and increased coordination among multiple jurisdictions (particularly between the

United States and Canada). The majority of my comments will be made within the regional context.

Given the significant time constraints under the law for implementation of SFA, limited resources, both human and financial and an already taxed agenda, National Marine Fisheries Service and the Fishery Management Councils were still able to achieve some measurable progress.

The groundwork was laid for promoting a broader ecosystem-based approach to produce a healthy abundance and diversity of marine species for human and other uses. However, because this represents a fundamental shift in fisheries management, the Act's full impact has yet to be realized. It rather should be viewed as a work in progress. Thereby, the emphasis should be on fine tuning the Act rather than rewriting significant components of it.

In particular, SFA mandates for identifying and protecting Essential Fish Habitat and addressing bycatch were positive steps toward an ecosystem approach to fisheries management. And, these are areas where some definitive actions were taken over the past several years.

Essential Fish Habitat Designations

Approximately 75 percent of federally managed fish species spend some portion of their lives in estuaries and rivers. Inshore waters provide important areas for fish breeding, feeding and growth. However, these areas are subject to all manner of degradation from urban, residential and industrial runoff to the loss of wetlands and submerged vegetation. The Essential Fish Habitat (EFH) mandate represents the first truly comprehensive attempt to protect habitat from these and other sources of degradation as well as from the impact of various fishing gear.

There has been some criticism over the broad scope of EFH designations. Having served as a technical advisor to the New England Fishery Management Council's Habitat Committee for the past two and a half years and seeing first hand the level of available scientific data and information, I believe that such broad designations, at least initially, are prudent. There remains much scientific uncertainty over exactly how much habitat is necessary to support healthy fish populations. Until such time as additional information and data can be collected from existing and new sources such broad designations are warranted. Again, it is important to view this mandate as a first step in a multi-staged process. Through additional collaborative research and a further consolidation of existing data and information from various federal, state and other sources, these designations can be refined and their value enhanced.

Another strength of the EFH mandate lies in its "Consultation Process." Having spent the better part of the past six years working to bring together fishermen, scientists, fishery managers and environmentalists to identify common ground on fisheries related management and science issues, I recognize the value of ongoing and open communication.

The requirement under Section 305(b)(2) is that a Federal agency "shall consult with the Secretary with respect to any action authorized, funded or undertaken, or proposed to be authorized, funded or undertaken by such agency that may adversely affect any essential fish habitat identified under this Act."

This provides a formal channel for more open agency dialogue and a foundation to address cross-sectoral effects on water resources. In order to manage fish species, which don't respect human societal boundaries, it is imperative that we consider the broader picture beyond just regulating fishing activities. There really isn't any other mechanism in place to evaluate the impact of various projects on fish habitat. Existing environmental review procedures available through the Clean Water Act and the National Environmental Policy Act (NEPA) examine the impact of proposed projects on the environment generally and on the human environment, respectively.

What is needed in order to move forward is a clear mandate for the National Marine Fisheries Service and the Councils to continue to refine habitat designations with a high priority placed on the development of Areas of Particular Concern. Further refinement of EFH designations and development of habitat protection measures also require investment in collaborative research and mapping, shared information and a common vision, and a long-term monitoring program.

In addition, it is imperative that the integrity of Section 305(b)(2) of the Magnuson-Stevens Act be maintained, if not strengthened, to promote increased communication among federal agencies over activities that may impact fish habitat.

Fisheries Bycatch and Discards

While results have not been as significant in the area of bycatch reduction as they were in identifying EFH, there have been some modest accomplishments since the passage of SFA.

Bycatch, particularly in multispecies fisheries as we have in the northeast, for years was regarded as a normal course of doing business. In some cases, fishermen following a natural desire to maximize the value of their catch, discard less valuable fish. In other cases, the discards are regulatory. Bycatch discards are simply an economic and ecological externality. However, with dwindling commercial fish stocks and concern over endangered species, the need to curtail bycatch and discards has significantly increased. Bycatch and discards not only affect vulnerable species such as seabirds and marine mammals, but also other commercial fisheries for which the bycatch is their primary target.

National Standard 9 states that "Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch."

In New England while there is clearly a need for more comprehensive evaluation and minimization of the region's bycatch, some positive steps have been taken to reduce bycatch and/or minimize bycatch mortality. The region already mandates the use of a bycatch reduction device in its northern shrimp fishery and has measures to keep groundfish bycatch in other fisheries under five percent. Most recently, with the reopening of a section of one of the groundfish closed areas for scallop fishing, strict bycatch quotas were put in place for yellowtail flounder and monitored with the help of a vessel monitoring system (VMS). Once the yellowtail bycatch quota was reached, the scallop fishery in this area was effectively shut down.

Further progress can be made in addressing bycatch by enlisting more support from fishermen. The fishing industry has proven time and time again that it can be innovative when it comes to finding technological solutions or alternative fishing methods to deal with bycatch. In the North Pacific longline fishermen took the initiative to reduce seabird mortality prior to the implementation of bycatch management measures. Similarly, fishermen led the charge to address problems of dolphin mortality in Eastern Tropical Pacific tuna fisheries and to reduce harbor porpoise entanglement in gillnets and shrimp fishery bycatch in the North Atlantic.

Towards this end, there needs to be a stronger legislative mandate to more actively engage fishermen in research and research project design—drawing on the fisherman's expertise and daily knowledge of aquatic resources and species co-occurrence in the marine ecosystem—to find further efforts to minimize bycatch and associated discards.

While existing regulatory measures provide some incentive for fishermen to address bycatch, they also serve to stymie ingenuity within the fishing industry to more effectively curtail this needless waste.

To help overcome this impediment, additional language needs to be added to Section 303(a), Required Provisions for Fishery Management Plans that encourages the adoption of conservation and management measures which provide catch incentives for fishermen to engage in fishing practices that avoid bycatch or result in lower levels of mortality of bycatch that cannot be avoided.

Congress also needs to ensure that there are adequate appropriations to support improved data collection and observer coverage if we are to determine the amount, type and disposition of bycatch and bycatch mortality in various fisheries, as well as support innovations in gear technology.

Collaborative Research and Strategic Planning within the Ecosystem Context

There are obvious advantages to increasing stakeholder involvement in data collection efforts. Both available resources and the scope of existing survey programs can be expanded. For example, while the fish component of marine ecosystems is monitored routinely for many stocks and in most regions—through programs like the standardized trawl surveys that have been implemented off of the northeast coast of the United States since 1963—some fish stocks are virtually unsampled by the current survey program. The trawl survey is further limited in its scope because it does not effectively capture inshore waters. In other regions, fish stocks are only surveyed every third year.

Section 2(a)(8) of the Magnuson-Stevens Act which states, "the collection of reliable data is essential to the effective conservation, management, and scientific understanding of the fishery resources of the United States," should be modified to recognize the value of partnering with various organizations such as the fishing industry, academic community, state agencies and other organizations to collect scientific data and information.

Another suggested change to the Act would address the need for including stakeholders in the research strategic planning process. The rationale for this being that this would increase stakeholder commitment to more long-term monitoring programs. Long-term monitoring programs are essential to the success of fisheries man-

agement, particularly if we are to discern the effects of fishery policies from those due to other factors.

Section 404(b) of the Magnuson-Stevens Act requires that the Secretary "shall develop . . . a strategic plan for fisheries research . . . indicate goals and timetables . . . provide a role for commercial fishermen in such research . . . and provide for collection and dissemination in a timely manner . . . and provide for coordination with affected States and other research entities."

Section 404(b) should be modified to specify that both industry and other stakeholders be involved in the development of strategic plans for collaborative research. If stakeholders are more fully vested in the development of the research strategic plan and actively involved in the execution of this plan, they are more likely to support its results.

The New England Fishery Management Council through its Research Steering Committee (RSC) has taken the first big step in helping to satisfy this mandate at the regional level by developing a broad list of priorities for cooperative research. What is needed now is for Congress to provide guidance to fishery management councils so that when they engage in designing collaborative research programs, addressing ecosystem questions are given a high priority. There also must be a long-term commitment to funding of collaborative research and investment in new institutions for collaborative data gathering such as the Canadian Sentinel Fisheries model, whereby fishermen are regularly engaged in fishery dependent surveys and the data is then integrated into annual stock assessments. There also must be long-term investment to ensure universal application of enabling technologies such as VMS and upgrading of the VMS data management capability regionally. Ultimately, this would lead to a more comprehensive research program with established ecological and governance underpinnings for ecosystem-based management.

At the end of Section 305 language should be added calling for the development of Fisheries Ecosystem Plans. Included in the plans should be information on the structure and function of ecosystems, including the geographic extent of the ecosystem and its biological, physical and chemical dynamics; a description of the significant food web including key predator-prey relationships and the habitat needs of different life stages of species that make up the significant food web, indices of ecosystem health and integrity; and an outline for a long-term monitoring program to evaluate fishery-dependent and fishery independent changes in the ecosystem.

Complimentary management directives also are needed within the Act. Specifically, language should be added to Section 2(b) emphasizing the importance of considering the precautionary approach in management decisions when the effects of fishing are unknown in order to maintain ecosystem health and sustainability. Also, in Section 2(c)(3) new language should emphasize the need for incorporating and applying ecosystem principles and considering how fishing affects predator-prey relationships within marine ecosystems, trophic structure, age class structure within stocks, and biological functions such as spawning.

As early as 1871, the value of understanding ecosystem dynamics was recognized, when the first appointed Commissioner of the U.S. Commission of Fish and Fisheries, Spencer Baird stated, "our understanding of fish . . . would not be complete without a thorough knowledge of their associates in the sea, especially of such as prey upon them or constitute their food." As we move into the new millennium and we struggle with how better to manage overtaxed fish stocks, it is time we took heed of these words.

Federal Observer Program

To complement collaborative research programs, a national observer program also should be established to monitor and collect statistically significant and reliable data about bycatch and discards, landings, impacts on essential fish habitat, and other relevant ecosystem information. Specifically, language should be added to Section 2(a)(6) of the Magnuson-Stevens Act calling for establishment of such a program.

Multilateral Coordination

In considering the reauthorization of the Magnuson-Stevens Act the means for promoting greater coordination of legislative and institutional responsibilities across jurisdictions should be encouraged. We need an "institutional" and a "legislative" ecology which more closely parallel the natural ecology to more effectively manage fish resources.

Therefore, it is important that there be complementary approaches in data collection, stock assessment and management of fish both at the state and federal level and at the international level. In the northeast, there should be increased coordination between the United States and Canada. The NMFS and New England Fishery

Management Council have already taken some positive steps to informally develop a management frame of reference between the United States and Canada for three principal groundfish stocks, cod, yellowtail flounder and haddock. Such action should be commended and further encouraged by Congress for more effectively studying and managing transboundary and highly migratory fish stocks.

At the New England Aquarium we have long recognized the value of such cross-sectoral collaborations, having conducted a number of workshops to promote information exchange among various jurisdictions. Currently, we are undertaking a collaborative research project with the lobster fishing industry and various government agencies in three states to apply a model developed by the Canadians for gathering stock assessment information. The hope is that this will enable us to take some serious steps towards better understanding the North American lobster's distribution in the Gulf of Maine.

In closing, I believe that the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act provides real opportunity for greater stakeholder involvement in strategic planning and collaborative research. This will contribute to a fuller understanding of the marine ecosystem, providing a foundation for ecosystem-based management and the long-term sustainability and health of marine resources.

Senator SNOWE. Thank you. Thank you all very much.

Dr. Rothschild, you were mentioning that the Act has not really achieved its intended goal. I'd like to ask each of you as we focus on this reauthorization exactly, what you think that we should focus on in terms of improving flexibility in the Act. That's something we hear consistently throughout all the hearings that I've held across the country. Second, please comment on involving the fishermen in the decision-making process, through the cooperative research as well as in the ultimate decision, so that there is a better relationship and harmony between the decisions, the agency, and the Councils who make those decisions.

Dr. ROTHSCHILD. I remember when the Act was first put in place, and Senator Magnuson said that at last we have a "new form of government," a new way of managing the fisheries. However, all one has to do is read any of the fishery press and you can see that the perceptions of performance are really not good. It seems to me what we need to do is buildup trust in the fishing community, but not at the sacrifice of the conservation of the fish. And the way to do that is through a flexibility that matches what we actually know about the level of the resources. As I pointed out in my testimony, the concept of overfishing, and therefore the concept of rebuilding is fuzzy, and so basically what we need to do is take more account of the needs of the fishing community and be more flexible in the use of overfishing definitions while certainly maintaining a minimum level for the stock.

The second issue involves fishermen in the decision-making process. There is, in my opinion, a tremendous cost saving that could be obtained by working with fishermen to get observations directly from fishing boats. Thank you.

Senator SNOWE. Thank you. Mr. Mirarchi.

Mr. MIRARCHI. Yeah, thanks, Senator. With regards to how Magnuson-Stevens is working, I think basically you can look at it as two phases. For the first 15 years or so, from 1977 through the early 1990's, and clearly the bridge was crossed with the Sustainable Fisheries Act, but even in New England before that, the earlier model was basing to exploit the fish stocks at whatever costs. The opportunity was for development. We then shifted gears and went to a protectionist mode where we began to rebuild fish stocks

that were depleted during that early period, but at a great cost to the shore-side component of a fishery, the people, the communities. And we're still in that component. We haven't yet learned how to balance those two phases.

My personal take is that we need to allow market forces to right-size the capacity to whatever resource that best available science tells us is out there to catch. Which bring me to the second part of your question: How do you achieve that proper assessment? And I think that one of the best tools that we have is utilizing the fishing platforms that are available. For one reason, there's a surplus of them today because of the stringency of the fishing rules that are now in place here in New England to rebuild stocks. So there's plenty of fishermen with only 88 opportunity days to fish for groundfish or with four or five months of closures in the Gulf of Maine who would love to have something else to do with their boats.

Number two, it would build confidence among the fishermen in the process itself. There's still a lot of skepticism as to whether NMFS knows how to count fish or not. And clearly, whatever the result of this cooperative research will be, it will at least be a broader basis of authority through those figures. And I think that will go along way to developing a fishery which is robust and sustainable. Thank you.

Senator SNOWE. Thank you.

Dr. Sullivan.

Dr. SULLIVAN. With regard to flexibility, I guess the first thing I think of is the way that we used to manage fisheries, and that was by providing a single quota, and nobody was allowed to go above it, and nobody was allowed to go below it. And for many years that worked, basically I think because the fisheries were never at the capacity to actually take those quotas.

We're now at a point where we're overcapitalized, and we have too much capacity. And so we need to have some options to explore. And I think one of the ways to do that is to actually explore the uncertainty associated with the assessments, the estimates that come out of the stock assessments. And I think National Marine Fisheries Services is doing a good job in providing some of that uncertainty, and I think they can continue moving forward in that direction. In particular, I think rather than again providing a single quota as a recommendation for what one should do, I think it would be useful to have some kind of distribution of quotas that are possible, and the consequences either to ultimate sustainable catch or to the stock in hand as an outcome. So effectively a decision table associated with different choices.

In such an instance, that would put the responsibility back into the Council's hands who should have the responsibility for managing the systems and allow the scientists to defend their work on the basis of science rather than from management standpoint.

With regard to involving fishermen, my experience with the halibut commission was very positive in the sense that I had plenty of opportunity to explain my stock assessments to the fishermen, to the managers, to the commissioners and to other scientists. And during the whole process of decision-making, the weeks and months prior to that when the halibut commissioners were making

their decisions, I would explain the assessment over and over and over again to lots of different groups from lots of different perspectives. And I felt that, although this was time consuming and took a lot of my energy, it was a good way to convey the thoughts and concerns I had about the stock to the people who it was important to get to. But furthermore, it allowed me to hear the concerns that people, other people had with regard to my assessment so that I could take the opportunity at subsequent times to address those questions and so forth.

So I guess what I'm saying is I feel that communication is really important, and it's difficult to underestimate the impact that will have.

Senator SNOWE. Thank you. Ms. Mooney-Seus.

Ms. MOONEY-SEUS. It's a combination of things. I think collaborative research has certainly involved the fishermen more in the process. It will enable us to tap into their collective knowledge and bring their resources to bear. It will help us broaden the scope of our surveys to better capture inshore areas and expand the duration of our surveys throughout the year. We do need to shorten the permitting process in terms of granting experimental fishery permits. One of the things that is promising in terms of the Council process right now is the fact that with the establishment of the research steering committee all the members on that committee represent diverse stakeholders, and everybody has a vote, and that's a positive thing in going forward. We should encourage the establishment of more committees like this.

There are opportunities or there should be increased opportunities for things like co-management. We've seen some positive results in Maine, mixed results, but some good results in Maine with the lobster zone management system. There are certainly opportunities for getting greater community involvement in fisheries management.

Senator SNOWE. Thank you. Senator Kerry.

Senator KERRY. I'm going to hold back on most of my questions because we've got a lot of people I think who are waiting to speak at our open mike session.

Let me just ask a quick question to Dr. Sullivan. Do I hear you say—are you suggesting NMFS is not basing their decisions on the best science that we have available?

Dr. SULLIVAN. Oh, no. I believe they are. I think could probably expand upon their communication of uncertainty associated with that. I think it's a change that's happening. In the past, fishery scientists were using deterministic models, and they were giving single-point estimates as to what's happening. With the advent of computers is also data base management systems, there's lots of data now that is being used. And it can be explored in a much wider sense. And as a consequence, one can convey not just the point but the consequences of lots of different actions.

Senator KERRY. Fair enough. And Dr. Rothschild, you advocate for this flexibility and I think you suggested ensuring fish stocks don't drop below a certain "flexible floor." And levels of catch ought to be "reasonable for the industry." I don't have a clue as to how that provides us with the margin of safety that you also mentioned we're looking for. Isn't that effectively what fishery managers are

doing now? Aren't they trying to do that? Don't they try to incorporate these ideas in the numbers they come up with now?

Dr. ROTHSCHILD. Well, it seems to me that the rebuilding targets are fairly rigid. And they're over a multi-year period.

Senator KERRY. They're rigid because we saw that flexibility was destructive, and that flexibility was taking us on a downward track.

Dr. ROTHSCHILD. I don't intend to mean that flexibility means that you continued to catch the same quantity of fish as the stock continues to decline. What I'm saying is that we need to take more consideration of National Standard Eight, for example, to balance the needs of the fishing community with the conservation of the stock. And some flexibility in the current year or the next year or in the third year really isn't going to cause the fish stock to become extinct. I only know of two or three instances where fish stocks have really become extinct. I know in New Bedford that there are perhaps 150 less fishing boats now than there were five years ago. That in a way is good because we're controlling capacity. On the other hand, we have to look at the economy of New Bedford that now consists of 150 less small businesses.

Senator KERRY. You're suggesting that the economy of New Bedford and those 150 vessels should have been balanced against stock rebuilding?

Dr. ROTHSCHILD. Well, what I'm suggesting is that when you buy back a fishing vessel, for example, you affect many businesses on the shore side.

Senator KERRY. What's the alternative that you're proposing? If you're trying to——

Dr. ROTHSCHILD. Well, the alternative——

Senator KERRY. —reduce fishing effort—I don't understand the balance there at all.

Dr. ROTHSCHILD. What I'm saying is that the balance is in the slowing down the draconian actions, and that in the long run this is not a tremendous conservation problem where it is a problem in the short run for the communities.

Senator KERRY. How do you know what you're proposing is not a tremendous conservation problem? Science tell us otherwise.

Dr. ROTHSCHILD. Well, actually, there are many cases where stocks declined independent of changes in fishing mortality. And there are many cases where stocks increase independent of fishing mortality. The real scientific issue again applying the best available science is that this relates to the recruitment issue which we really as a scientific community don't understand very well.

So the direct answer to your question is one, this isn't well-known, that's why Dr. Sullivan's approach is really a good one. And the second is that the risk of the stocks being, disappearing, is relatively small. We don't know of any stocks except a few that have actually disappeared.

Senator KERRY. That's because we stopped before we killed them. Are you telling me the striped bass experience wasn't somehow instructive?

Dr. ROTHSCHILD. I think the striped bass experience was instructive——

Senator KERRY. We stopped before it was extinct.

Dr. ROTHSCHILD. Well, actually, there were programs in the 1940's that were put in place to prevent or understand the decline of the striped bass. And then the striped bass came back independent of any regulations on fishing. And then it declined again. And that's when new regulations were started. So if you look at the long-term history of the striped bass over the years, the interaction of the effects of the environment and fishing are arguable. I'm not saying that we don't have to account for fishing, that we don't have to be prudent, so on and so forth. I don't want to be misunderstood. I'm just saying that the interpretation is perhaps more flexible than the one given.

Senator KERRY. Well, it all argues powerfully for the two things we talked about at the beginning the hearing which are the resources and the information.

Dr. ROTHSCHILD. Yes, absolutely.

Senator KERRY. Thank you.

Dr. ROTHSCHILD. Absolutely.

Senator SNOWE. Thank you, Senator Kerry. Senator Stevens.

Senator STEVENS. I'm constrained to ask whether any of you have ever costed-out your suggestions. How much would it cost the taxpayers to follow your suggestions?

Dr. ROTHSCHILD. Well, I find it really very difficult to cost out suggestions because—I would like to comment on it. The reason that I find it difficult is, for example, when you ask the Coast Guard, Well, how much is this? Or how much is that? The answer is, Well, we're doing other things. And so I guess that—the way I would look at it is that a simpler fishery management scheme that was—would be more flexible, would reduce a lot of social costs and social programs that relate to the adverse economic conditions of the fishermen. And I would think that what would be needed to tremendously increase this data collection and so on and so forth is, in fact, quite expensive. But that always has to be taken into account the total program of the agency.

Senator STEVENS. Dr. Sullivan.

Dr. SULLIVAN. I believe that communicating information in terms of risk could be done with the technology that we have now at no—maybe a marginal additional expense in terms of the time and effort involved for the National Marine Fisheries Service.

In terms of communication, I feel that it will be an added cost in terms of time and money. But I feel that it would be worthwhile in terms of—overall. Because currently there's a stalemate I think, as evidenced by the discussion earlier with Mr. Hill and the Council in terms of understanding what the consequences are taking actions that keep fish mortality at a high level.

Senator STEVENS. Ms. Mooney.

Ms. MOONEY-SEUS. We have to look at a combination of funding sources. It's a lot of money to underake all this. And I couldn't put a precise figure on a lot of the things I suggested—with the exception of the vessel monitoring systems. We've heard ranges of 3,000 up to 6,000 dollars per boat. And I'm sure as more and more boats were equipped with VMS we could get the cost per boat down.

You have to look at not only Federal moneys but also support from the fishing industry to help offset some of the cost. As the fish stocks recover, you have to look at also private moneys to come into

the picture. And I think we have to recognize this is a public resource, so it isn't unreasonable to ask for more appropriations to do things like collaborative research.

Senator STEVENS. It's not unreasonable to ask, but . . . Thank you very much.

Did you have a comment, Mr. Mirarchi?

Mr. MIRARCHI. Yes, I do, thank you, Senator. My comment is this: I can only offer you an opinion. I'm a fisherman. There's going to be a short-term net cost to the taxpayers to get such a program of collaborative research up and running. And eventually there will be a pay-back through an enhanced resource. We've heard today of people opining that the resource productivity at maximum sustainable yield could be perhaps three times what it is presently. That the cost burden should be at least in part borne by that enhanced resource. Basically, the resource, once up and running, should be able to sustain itself. But we need to boot strap it to get it to that point. Thank you.

Senator STEVENS. Well, I can only tell you, the people of Cordova found that their resource salmon was disappearing, and they taxed themselves. I believe it was two cents a fish. Do you recall that, Dr. Rothschild? And after two years, started building some hatcheries and today have an overabundant supply of salmon. There was no Federal money involved at all, no state money involved at all. It was all the industry themselves getting together. Although at the very lowest ebb of their existence, they taxed themselves and provided their own stability and they're still the most stable supply in the state. Have you done that here at all?

Mr. MIRARCHI. To my knowledge, no. At this point, there is no possibility of assessing a fee to commercial—to Federal commercial fishing permits. I personally am not adverse to that——

Senator STEVENS. Well, this wasn't a Federal—this was industry action. It's just a collection. They got together and formed a collection.

Mr. MIRARCHI. I'd like to raise an associated point, if I could. And that is this is why I feel that a rights-based management system is so important that if people feel they have a vested economic interest in a living resource versus having to kill a fish in order to realize a personal economic gain from it, they'd look much more favorably on programs such as that which occurred in Cordova.

Senator SNOWE. Final word?

Senator STEVENS. I'm constrained to add that they provided the hatcheries that supply sports fishermen, the public at large and the ocean mammals and everything else. They did it themselves. And it's the most successful program I know in the country. Thank you.

Senator SNOWE. Thank you. Thank you all very much. We thank you very much for sharing your views here today.

This is the final part of the program, and I know that many people have signed up. We've got about a half an hour for open microphone, so we're going to ask you to limit your comments to no more than one minute. We're going to have a red light here, and please, we ask you to honor it. Rich Levitt of Senator Kerry's staff will read the names for the open mic session. So please come forward very quickly so we can move the process along.

Who's number one?

STATEMENT OF MAYOR TOBEY, GLOUCESTER, MA

Mayor TOBEY. Thank you, Madam Chair, Senators. I will be brief; no one will miss a flight on my account.

I want to speak simply to one criteria on behalf of the city of Gloucester supplementing all that others before me have said, and that would be on National Standard Eight. We ask that there be, as this review goes forward, an effort to strengthen the requirement for meaningful socioeconomic impact consideration. Moving past what we now see as minimum criteria, cursory studies, justification rather than complementary action when it relates to decisions already made is what we fear we see.

Since I became mayor in 1991, we've seen real social change in our community on its waterfront, real economic change. We've seen stresses in family where the fisherman father can no longer go fishing. We're seeing financial stresses and strains like never before. We're seeing fewer folks working in the related industries both directly and indirectly to the fishing industry. We're seeing a waterfront that is a matter of both sentiment, heritage and law must be marine in its utilization no longer able to move ahead with new investment because we are not getting a balanced approached we see as a result of National Standard Eight being too low down rather than equal in its placement in the prioritization scheme.

I'm not looking for the days to return a hundred years ago when my grandfathers fished, a harbor full of masts and fishing boats. But we're looking to hold onto the infrastructure we have so that when the species do rebound the small family businesses that now have been looking to hang in there can move ahead with the progress they have helped realize by being partners in conservation and research today.

Thank you for your indulgence.

Senator SNOWE. Thank you very much.

Senator KERRY. Mayor, you've done a great job out there too.

Mayor TOBEY. Thank you, Senator. We like what you're doing.

STATEMENT OF MATTHEW THOMAS, ON BEHALF OF FREDERICK KALISZ, MAYOR OF THE CITY OF NEW BEDFORD, MA

Mr. THOMAS. Good afternoon. My name is Matthew Thomas. I'm one of the assistant city solicitors for the city of New Bedford. Unfortunately, Mayor Kalisz could not be with us today. He's on his way to Washington. Maybe you passed in the air. He has asked that I read the statement with your permission.

Madam Chair and Senators, thank you for the opportunity to address you this afternoon regarding the Magnuson-Stevens Fishery Conservation and Management Act. Unfortunately, I'm scheduled to be in Washington today and so cannot address you in person. I have asked Attorney Matthew Thomas to deliver these comments for me. And I thank you for your understanding of my absence from today's hearing on that important matter, sustainable fisheries.

As you are aware, mariners from New Bedford have been fishing the waters along the east coast of the United States for over 150 years. Our fishermen harvest one of the most diverse catches in the United States, and in fact, over 45 percent of the seafood landed

in Massachusetts is landed in the port of New Bedford. The seafood industry in New Bedford allows over 30,000 individuals to provide a living for their families and contributes over $800 million to the economy of New Bedford. Our port is ranked number one in the United States based on dollar value of landings.

This concept of a sustainable fishery is one that has been understood by our fishermen for over 150 years. Initially, it was the fishermen themselves who regulated the days at sea. Eventually that regulation has been assumed by the government through the Magnuson-Stevens Act.

This afternoon I would like to direct my comments to one aspect of the regulation. The need to employ the best available technology to determine the levels of resource and the impacts of certain levels of harvesting. Whether one is a proponent of the derby theory or the quota theory of resource management, it is essential that the data upon which these regulatory decisions are made is as accurate as possible.

I understand that there are significant challenges in the effort to accurately compile data and there are differences of opinion in the interpretation of that data, however, I also understand that unless we utilize the most innovative technology available and unless all the management Councils agree to a protocol regarding the interpretation of that data, our fishermen in our communities will be subject to rules and regulations that shift with the tide.

The old methods of reporting catches are not sufficient. We must apply the same efforts to accurately determining catch levels as we have to determining the levels of the resource.

In New Bedford, we are fortunate to have a world-class center for marine science and technology. That center is CMAST, the Center for Marine Science and Technology at the University of Massachusetts. Dr. Rothschild and his competent staff have been instrumental in helping us understand the scallop resource and the effect of different levels of harvesting on that resource. In large part, thanks to their efforts, our scallop industry has regained access to the closed areas leading to an additional $30 million to $40 million of product.

Through CMAST's efforts, we were able to learn that it is necessary to harvest to certain levels to maintain a healthy scallop resource. This success involved a cooperation between CMAST and National Marine Fisheries and the New England Management Council and the harvesters themselves. This effort should become a model for analysis of the other fishery resources.

A broader scope of industry groups should be brought into the process of fisheries management in order to protect the interest of all participants. As you know, the fisheries Councils were the body created as the partnership between the government, the scientific community and the direct stockholders in fisheries. With all due respect to the other partners in the fisheries Councils, it is the scientific community that will play the greatest role in achieving a truly sustainable fishery. The date collected and the analysis of the scientific community is to some degree outcome-determinative. We must encourage the scientific community to develop the new innovative methods to assist in the true assessment of the resource and

the true impact of various levels of landing. We must remove the guess work from this process.

I understand this is a difficult task, however, who among us would make a decision that affects their family without attempting to collect the best information and analyze that information as thoroughly as possible? We must also continue to engage the harvesters in the data collection and analysis. These individuals spend a good portion of their lives on the sea and have developed an understanding of the ocean that should not be minimized.

In general, a much larger range of information is needed from the harvesting sector, data collectors, universities and the National Marine Fisheries Service. In closing, I would again like to thank you for the opportunity to offer these comments. We in New Bedford are dedicated to attaining a sustainable fishery, and we have been committed to this goal for over 150 years, however, a sustainable fishery is one that must not only sustain the resource but the industry as well. That is our goal, and we will only succeed in reaching that goal if we embrace the best available means to collect data, analyze that data and avoid solutions that are overly simplistic. Thank you.

[The prepared statement of Mayor Kalisz follows:]

PREPARED STATEMENT OF FREDERICK KALISZ,
MAYOR OF THE CITY OF NEW BEDFORD, MA

Thank you for the opportunity to address you this morning regarding the Magnuson-Stevens Fisheries Conservation and Management Act. Unfortunately, I am scheduled to be in Washington today and so cannot address you in person. I have asked Attorney Matthew Thomas to deliver these comments for me and I thank you for your understanding of my absence from today's hearing on the important matter of sustainable fisheries.

As you are aware, mariners from New Bedford have been fishing the waters along the East Coast of the United States for over 150 years. Our fishermen harvest one of the most diverse catches in the United States and in fact over 45 percent of the seafood landed in Massachusetts is landed in the Port of New Bedford. The seafood industry in New Bedford allows over 3000 individuals to provide a living for their families and contributes over $800 million dollars to the economy of New Bedford. Our port is ranked number one in the United States based on dollar value of landings. This concept of a sustainable fishery is one that has been understood by our fishermen for over 150 years. Initially it was the fishermen themselves who regulated the days at sea, and eventually that regulation has been assumed by the government through the Magnuson-Stevens Act.

This morning I would like to direct my comments to one aspect of the regulation—the need to employ the best available technology to determine the levels of the resource and the impacts of certain levels of harvesting. Whether one is a proponent of the "derby theory" or the "quota theory" of resource management, it is essential that the data upon which these regulatory decisions are made is as accurate as possible. I understand that there are significant challenges in the effort to accurately compile data and that there are differences of opinion in the interpretation of that data. However, I also understand that unless we utilize the most innovative technology available and unless all of the management councils agree to a protocol regarding the interpretation of that data our fishermen and our communities will be subject to rules and regulations that shift with the tides. The old methods of reporting catches is not sufficient. We must apply the same efforts to accurately determining catch levels as we have to determining the levels of the resource.

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In closing I would again like to thank you for the opportunity to offer these comments. We in New Bedford are dedicated to attaining a sustainable fishery and we have been committed to this goal for over 150 years. However, a sustainable fishery is one that must not only sustain the resource, but the industry as well. That is our goal and we will only succeed in reaching that goal if we embrace the best available means to collect data, analyze that data and avoid solutions that are overly simplistic.

Senator SNOWE. Thank you very much.

STATEMENT OF HON. BRUCE TARR, MASSACHUSETTS STATE SENATOR

Senator TARR. Good afternoon, Madam Chair and through you to the members of the Committee. I'm State Senator Bruce Tarr, the assistant minority whip of the Massachusetts State Senate, and also the co-chairman of the Coastal Caucus, which is a caucus of Massachusetts legislatures concerned with the very issues that you're taking up today.

I want to thank all of you for coming to engage us in the kind of dialogue that it's going to take to make Magnuson the truly effective tool that we all want it to be. And along those lines, I want to get into a couple of things that have already been mentioned by the panel.

And first, to Senator Kerry's question about what ought be the time? What ought be the safeguard? It seems to me that what we ought to be looking for is not the quickest time of rebuilding, but the best sustainable time. And to the extent that we can match the needs of the communities with the ability over the long term for the stocks to rebuild, then we found that optimum goal that folks would be able to believe in and carry forward in complying with the Magnuson requirements.

In addition to that, we ought to be looking at I think an additional national standard, one that allows the maximum number of industry participants that have historically participated in the industry to be able to continue to participate in the industry. And Madam Chair, that means directly addressing the issue of latent effort, whether it be for accounting differently or whether it be for buying it back, but dealing with it squarely on its face so that peo-

ple today who are making the sacrifice to continue the fishery aren't doing it for the benefit of others who are not making those same sacrifices.

Madam Chair, we've talked a lot today and you all had great testimony on how do we get more participation? How do we get the people that are affected to be more effectively involved? And I think some procedures could be adopted that would very effectively do that.

First, the goals are to be up front. They ought to be voted on. And they ought to be cleared by the New England Fishery Management Council before plans are solicited. And when plans are solicited they ought to be described in terms of the steps they'll need to pass in order to be accepted, and when they're rejected by the Council they ought to be rejected in writing with the reasons that the industry has come up short so that it's not a catch or a hit or miss, that it's a process of dialogue and cooperation unlike some of what we see today.

And toward that, we ought not to continue to have, in my opinion, Madam Chair, the analysis of the socioeconomic impact of these plans by the folks that are writing and approving the plans. I would suggest to you that divorcing the issue of trying to regulate from the issue of trying to sustain would in this instance be a good idea. With those kinds of things and those kinds of analyses being completed by the Small Business Administration or other agencies whose specific role it is to maintain sustainable communities. I think that would go a long way.

And along that way, the issue and the one I'll close on because it's very hard for me, Madam Chair, to constrain myself, and I'll try to do the best I can, but I think collaborative research is a common goal. It's something that is going to provide us with the bridge between the confrontational system of management that we've seen and the cooperative system of management that we will see.

And toward Senator Stevens' point, in fact, in Massachusetts, the work of the Massachusetts Fisheries Recovery Commission, the scallop industry was compelled through the Fishery Survival Fund to produce industry funds to continue that collaborative research, not on its own, but in partnership with state and Federal funding. And I think it's a model that we ought to continue to follow.

And last but not least, I would suggest to you that if we look at Magnuson and we look at it as a tool for that kind of dialogue and that kind of interaction, then we ought to be willing to stand up and say that the only best science available is the science which includes direct and verifiable input from the people whose lives are so desperately affected by these regulations. That would be a change, Madam Chair, that would go a long, long way.

Let me conclude just by thanking you, and particularly by thanking Senator Kerry for his great work in working with the Fisheries Recovery Commission and with all of you for understanding the investment that we need to continue to call fishery as one of our most important industries.

Senator SNOWE. Thank you very much.

STATEMENT OF RICHARD MUSIOL, SPOKESPERSON FOR THE HON. THERESE MURRAY, PLYMOUTH AND BARNSTABLE STATE SENATE DISTRICT

Mr. MUSIOL. Senator Kerry, Senator Snowe, Senator Stevens, good afternoon. My name is Richard Musiol, and I am the spokesperson for Senator Therese Murray. Senator Murray represents the Plymouth and Barnstable State Senate District which covers southern Plymouth County and upper Cape Cod.

The Senator's home town, and in fact, America's Home Town, the Town of Plymouth, Massachusetts, is a vibrant fishing community. Senator Murray is not a scientist, nor is she a fisherman. As a leader in our community, however, she does have some concerns in the creation of various species management plans pursuant to the Magnuson-Stevens Act and the Sustainable Fisheries Act.

Specifically, Senator Murray has two concerns. First, there is a lack of science in developing the species management plans. We have seen constant disagreement between our local fisheries officials and our fishermen and our Federal fishery regulators.

Second, the negative effect of these management plans never seems to play a role in the development of these plans. As Senator Snowe mentioned earlier, the recently published GAO report indicates that Federal officials do realize the potential negative economic and social impact, but they fail to minimize that impact.

Nowhere is this more true than the Plymouth fishing community that recently has to bear the enactment of the Spiny Dogfish Management Plan. Our Plymouth port alone caught more spiny dogfish than will be allowed for all New England and Mid-Atlantic states under the plan enacted by Secretary Bill Daley. It is no exaggeration to say that this management plan will crush the port of Plymouth.

As the GAO report also indicates, there are much more resources needed in this area. However, Federal fishing regulators must work more cooperatively with our state officials and our local fishermen to get a more accurate assessment of the fishing stocks.

Science must prevail when it comes to the development of these management plans. Accurate science, however, cannot be attained unless we all work together.

On behalf of Senator Murray, we want to thank Senator Kerry for his diligence in his efforts in keeping us informed on these important Federal issues. Thank you.

Senator SNOWE. Thank you.

STATEMENT OF MR. PRYBOT, COMMERCIAL FISHERMAN, CAPE ANN, MA

Mr. PRYBOT. Thank you for the opportunity to speak. I'm here as a Cape Ann, Mass commercial fisherman, a commercial lobsterman and also a small boat longliner who holds a Federal day-at-sea hook permit. And I'm somebody who has attended a lot of Council meetings and continue to do so and has a lot of contact with fishermen, especially Gloucester fishermen, all fishermen along the coast.

Plain and simple, what I'm seeing and also hearing is that many people, especially commercial fishermen, have lost faith in the lower levels of the fishery management process. And that's why

they are circumventing it and going to you people, the people that control the pursestrings and have the power over the lower agencies.

They share the same skepticism in the fishery management process that I sense coming from you three people earlier. That's where they are.

I just hope when the Magnuson Act does get reauthorized that two points will be stressed. One is fairness to everybody involved. And also that some plain old simple common sense will be added at times. When I speak of fairness, one of the most annoying areas to commercial fishermen is what they view and what view is unfairness with the Gulf of Maine closed areas. They feel as though these are closed areas and they should be closed to all commercial fishing ventures including party charter vessels. Right now what's happening, the party charter vessels are allowed to fish in these closed areas and yet commercial fishermen who make, who earn their living on the same finfish, codfish that the party charter vessels can. That to me is blatant discrimination, especially in the Democratic process. You've probably heard the argument, Well, the party charter vessel people say, We didn't cause the Gulf of Maine cod collapse. There are a lot of commercial fishermen like myself who didn't cause the Gulf of Maine cod collapse either. Yet, we can't go into these areas. That's unfair. That should change.

And another thing——

Senator SNOWE. You have a one-minute time limit, we have many people here.

Mr. PRYBOT. Yes. The National Marine Fishery Science people say, because I keep track of this, the Gulf of Maine cod stock is still dangerously low, yet the Council allows cod fishing in these critical areas during the critical time when the cod bunch up and spawn. It makes no sense at all.

And the other issue in terms of common sense is please change the overage policy, bring back the running clock provision. Now if boats catch their quota for a trip, they have to stay out and they can't come in. Let the vessels come in and take out their catch and legally sell it and then deduct the days-at-sea from that. Otherwise, everybody loses. The fishermen because they have to stay out and they have to bring in a lower-quality product, and more trip costs are associated. And obviously the dealer and the consumer loses. You're dealing with a lower-quality product. And also the stock itself loses because otherwise if those boats have to stay out, they're going to continue fishing, and the only thing that's going to happen, more and more discards.

And let's cut down on the discards in the future and also increase the fairness and add a little common sense. Thank you.

Senator SNOWE. Thank you very much.

I would like to remind the audience that the legislative record will be open for statements, and we will certainly include any additional comments beyond what you make here.

STATEMENT OF JOE ORLANDO, FISHERMAN, GLOUCESTER, MA

Mr. ORLANDO. Hi. My name is Joe Orlando. I'm a Gloucester fisherman. And I'd like to thank you very much. This is probably one of my biggest days of my life to be in front of people like you.

Like I said, I'm a Gloucester fisherman. I'm the owner and captain of the fisher vessel *Padre Peer* in Gloucester. I belong to an organization, the Gloucester Fishermen's Association, which we belong to the Massachusetts Fishermen's Partnership. And we'd like to support Angela's testimony earlier with the Partnership.

I would like to add support for the Massachusetts Fishermen's Partnership Plan. I feel it will bring us up to speed on the future fisheries. Senator Kerry, you asked a question earlier to Russell Sherman's panel. Did you feel fairness on the panel? I have 88 days at sea while other boats have 100 to 150 days. I don't see where the fairness to that is.

Senator KERRY. Why is that? Can you tell me?

Mr. ORLANDO. Well, at the time when National Fisheries and NMFS were issuing out days and splitting them up, they picked two categories: Days at sea and fleet days. And at that time it was voluntary on which of the two systems you wanted to go into. But the fleet days thing was that you have to have the black box, which is the monitoring system you talked about that will come into play that will cost $8,000 to $10,000. So a lot of us felt that we couldn't afford to spend that kind of money, so we went with fleet days. Well, the black box never came to be, so we lost the opportunity to apply for more days.

And I brought that up to the Council and it was at one Council meeting in Plymouth, and it was voted six to six, I believe, and it came down through the chairman which he denied us the reopening of the . . .

Safety would be greatly increased with the return of the running clock. Last year we had, just before the closure, we had a captain named Kevin Scola with a small boat, and I guess he had overages and stuff. He couldn't come in until a certain time. And what happened was there was storm and put gale warnings up and started to blow about 30 knots out of the northeast. And one of his winches came right off the deck and went right up against his gallowses. And we had to go to his rescue practically. So I'd like to make that point.

Under discards, one of the biggest reasons of discards is that the landing limit is just set too low. I believe in the trip limit. If the trip limit was great enough, we wouldn't have these tens of thousands of pounds of discards that we have now. And if the codfish situation is so bad—I'd like to really add this—you know, everything is closed to us off the coast of Massachusetts, and we still go fishing and we catch a hell of a lot of codfish. So somebody is making a mistake someplace.

Like I said, so I really appreciate your giving me this opportunity. Thank you very much.

Senator SNOWE. Thank you for being here. Thank you.

Senator KERRY. Thank you very much. Thank you.

STATEMENT OF ANTONIO RANDAZZO, COMMERCIAL FISHERMAN, GLOUCESTER, MA

Mr. RANDAZZO. I'm Antonio Randazzo, commercial fisherman out of Gloucester. This is the first time I meet somebody—I'm a little bit nervous about this.

Senator SNOWE. No, don't be. It's just us.

Mr. RANDAZZO. Okay. I support Angela's testimony, and this is all about, it's all about my life. My family depends on me, it's because, you know, what I do the best is fishing. I'm with the conservation, and I'd like to join—in other words, I'd like to have this thing last me forever. So everything we got to do is let's do it right because, like I say, whatever Angela put there is right, for my concern, for my family. I'm just there to try to put food on the table. So please, have a good thought about what concerns me and my friends. Thank you.

Senator SNOWE. Well, we hear you. Thank you very much. Thank you.

Senator KERRY. Thank you.

STATEMENT OF EDWARD BARRETT, COMMERCIAL FISHERMAN, MARSHFIELD, MA

Mr. BARRETT. Hi. My name is Edward Barrett. I'm a commercial fisherman from Marshfield, Massachusetts. I am also a member of the Massachusetts Fishing Partnership working group for the reauthorization of Magnuson-Stevens.

I would like to talk today on the topic of rebuilding schedules. As I understand it, once a fishing stock is declared overfished, a 10-year rebuilding schedule is mandated. Meeting these schedules, management plans have extracted a heavy cost to fishermen and their communities.

My question is: Would this rigid schedule work in other problematic areas in the United States? Would the citizens of the United States be willing to pay the price, and would Congress and the president have the political fortitude to carry forth solutions on Social Security, race issues or crime in a 10-year period? I have my doubts. But this is exactly what the communities have been asked to do in the fishing industry.

On the schedule of the SFA I would like to ask if there would be some flexibility to recognize this and to provide some relief? Ten years is just too short a time to rectify management plans that have existed for decades. Thank you.

Senator SNOWE. Thank you.

STATEMENT OF VITO J. CALOMO, EXECUTIVE DIRECTOR, GLOUCESTER FISHERIES COMMISSION

Mr. CALOMO. Thank you very much. When I was a young man my father taught me there can only be one captain on a ship, and I see three captains up there on the Good Ship United States. You're going to have problems.

My name is Captain Vito J. Calomo. I'm a third-generation fishing captain. I started fishing in 1958 washing dishes for the crew and cleaning the bilges. I fished in the 60's, the 70's and in the 80's I built a new vessel and I became a captain.

I am presently the executive director of Gloucester Fisheries Commission and the latest member of the New England Fisheries Management Council.

People, how did we get this far? We the people got us here. Not just one segment. We the people have overfished. We the people have mismanaged. And we the people have overpolluted. These are the reasons that we are here today. We are discussing the Fisheries Management Act, Magnuson-Stevens Fisheries Conservation Act, and act to provide for the conservation and management of fisheries and for the purpose. We are certainly working for conservation, and we are definitely having management. But we are missing the third ingredient, fishing industry input.

We have a disconnect. Cooperative management has been missing. Fishermen see what is happening with our stocks long before the scientists and the managers. Years before any action ever took place, the fishermen asked for the 200-mile limit. They knew overfishing was occurring. No one listened. We overfished.

In this man's opinion, if we would have acted much sooner, we would not be here today. For at least 100 years we have polluted. We have filled in estuaries, marshes and other habitats. We have dumped millions of gallons of toxins directly or indirectly into our oceans.

Last year Senator Tarr and myself spent approximately seven hours talking a fishing captain back into the home port of Gloucester during a hurricane. The captain thought he was over the haddock trip limit for his days allotted at sea. This is a safety issue. And this is a big one.

I ask you, Senator Snowe and Senator Kerry, to move forward with the reauthorization of the Magnuson-Stevens Act by incorporating active fishermen to participate in the problem-solving. Cooperative research will help us all.

Just a thought off my head—I seen your red light go on, but I was here—I left my house at seven o'clock—bear with me. As a fisherman, I do see a great difference in our people, in their mindset. They're highly educated today. They have conservation minds which they didn't years ago. We have changed them. We have educated them. They understand catching the last sacred codfish would be their last sacred fishing trip. So please incorporate the fishermen, and we will have better fishery.

Thank you, Senators.

Senator SNOWE. Thank you very much.

Senator KERRY. Thank you.

STATEMENT OF DOUG HOPKINS ON BEHALF OF THE ENVIRONMENTAL DEFENSE FUND

Mr. HOPKINS. Thank you very much, Senator Snowe and Senator Kerry, for the opportunity to speak today. And thank you, Vito, you're always a tough act to follow.

I appear on behalf of the Environmental Defense Fund, which is a non-profit environmental organization. I also serve on the New England Fishery Management Council. I am the obligatory member from the State of Connecticut and have been on the Council for three years. I'm also on the executive committee of the Marine Fish Conservation Network, which earlier witnesses today referred to.

So I wear several hats, but I'm speaking today for Environmental Defense.

Here in New England we have experienced severe mismanagement of the fishery resources off our coast. There are hundreds of millions of dollars being lost every year because many of our commercially valuable fish stocks remain overfished and depleted, and therefore cannot sustain robust fisheries. Recreational fishing, especially for groundfish, such as cod, is a shadow of what it once was and what it could be again.

So who's to blame? The answer is complicated, but at this point that's really not the most important question. The real question is: What do we need to do to dig out of the hole we find ourselves in? And this is a hole we can dig ourselves out of. This is—there's truly a pot of gold at the end of the rainbow and this is a solvable problem. But we need your leadership. And we think that there are a number of things that you can help us with.

The Sustainable Fisheries Act is good. It needs to be—it needs to stay the course. There are some aspects of it that need to be strengthened. For example, the bycatch provisions. The moratorium on individual fishing quotas also needs to be lifted.

The biggest underlying problem with fishery management in New England stems from two facts: No. 1, in this region, we have sought to use input controls to restrict fishing. And input controls have failed. No. 2, we have excess fishing capacity. Too many boats chasing too few fish. And this situation sets up the impossible dilemma of managers trying to keep too large a fishing fleet and the communities that depend on satisfied without enough fish. The consequence has been that the managers have allowed too many fish to be caught, and the result has been overfishing and stock collapses and lack of flexibility for fishermen.

To end this vicious cycle, the New England Council needs to be granted the full range of management tools to craft solutions. This means that we need Congress to lift the moratorium on individual fishing quotas and to provide guidance to how IFQs, both transferrable and non-transferrable, can be used fairly and in a way that assures that their potential conservation benefits will be achieved. Thank you very much.

Senator SNOWE. Thank you.

STATEMENT OF MR. BOURQUET

Mr. BOURQUET. Good afternoon, Senators Snowe and Kerry. Thank you for this opportunity to address you.

Science, the issue of science is very, very prevalent, as we all have witnessed this afternoon. This is what I pulled off of the Internet. "Coalition urges changes supporting fishery science." There's nine issues; seven of them are concerned with the science.

One of the problems with science as we perceive the situation is that the data base has been based on landings. And you can have a increase in resource with decreasing landings and you can have a decrease in resource with increasing landings. But the landings are controlled over time and scaled downward, and then you use the resultant landings as indicator of abundance and you'll show a decrease in the biomass. Conversely, like with the herring catches in the Gulf of Maine where the catches kept going up, it gives the

appearance of a healthy stock, but we find that through observation those stocks aren't as healthy as we would like to have them.

The ITQ and the IFQ—we're already in a limited access situation, and controlled access, and people have seen, fishermen have seen oligarchies form with this type of approach. So I think the fisheries people, the fishermen have changed their views over time.

I know we're limited on time. I had my two minutes in Portland. I just want to say on the safety issue, with regard to the airplanes. The FAA received numerous complaints. And their folders are full of letters from people from last year that were very concerned with their safety. And I know Alaska, one of the prevalent reasons that they eliminated planes from their fishery, they had 14 deaths up there, including a president and his son. So I appreciate the concern that the Senators have emphasized on this issue. And I thank you for everything you have done.

Senator SNOWE. Thank you.

STATEMENT OF JAMES D. O'MALLEY, EXECUTIVE DIRECTOR, EAST COAST FISHERIES FEDERATION, INC.

Mr. O'MALLEY. Thank you very much, Madam Chairwoman, Senator Kerry. East Coast Fisheries Federation, off-shore boats Rhode Island to New Jersey, 80-footers, crews of four or five, squid, groundfish, the mix.

You've heard a lot about science and mathematics and single species management. And what I'd like to point out to you is that the way the interpretation of the Sustainable Fisheries Act is being carried out, a good law is being destroyed by its interpretation. That is the mathematically dominated single species management. What commercial fishermen have done for hundreds of years is to flow with the ocean. Abundant fish, you caught a lot of it cheap. Good for the consumer. And you made big money on fish that was scarce.

The way the law is being interpreted now, if fish is abundant, we are going to husband it over a long period of time, regardless of whether or not environmental circumstances permit that. If fish is scarce, you have to leave it alone completely. What the Sustainable Fisheries Act needs to have done is an interpretation that goes back to the rhythm of the ocean and allowing the industry, which is part of the ecosystem, to flow with it once again.

And given the fact that I'm already 20 seconds over, I'll just submit the rest of my remarks in writing. Thank you.

[The prepared statement of Mr. O'Malley follows:]

PREPARED STATEMENT OF JAMES D. O'MALLEY, EXECUTIVE DIRECTOR, EAST COAST FISHERIES FEDERATION, INC.

A Perspective on the Sustainable Fisheries Act

Although this statement may shock some people, the fact is that the promises of the Sustainable Fisheries Act will never be kept. It is an illusion fostered by political interests to avoid taking responsibility for the new fisheries crisis. This new crisis is one that can be seen on shore, and has to do with the people in the fisheries, not the resource itself.

How could this be? The Act was passed with great hopes and expectations, conjuring up a vision of bounty for all.

But that is not the way the ocean works. Fishermen have, for hundreds of years, flowed with the rhythms of the sea. That sustained them, economically and bio-

logically. They caught large volumes of abundant fish for low prices, and at the same time, caught scarce fish for very high prices.

No more.

The Sustainable Fisheries Act, in effect, says that scarce fish must be left completely alone so that the stock will rebuild in the shortest possible time. Simultaneously, abundant species must be husbanded over time by maintaining biomass at "sustainable" levels. The cruel hoax lies in a combination of politics and mathematics.

The Act mandates that the fisheries be maintained at a level which can continually produce maximum sustainable yield. But because ecosystems and interrelationships are poorly understood, each individual species has been analyzed, and regulations passed which attempt to accomplish this maximum for each species. But appealing to the mathematicians among you, I have to ask if it is possible to maximize any equation for multiple variables simultaneously. Can you have an ocean full of every kind of fish at the same time? Of course not.

What all this means is that the laws of supply and demand will no longer work for fishermen or for the fishing industry. High abundance will not mean high productivity. And the economic rewards of scarcity—high prices—will go unrealized and rapidly become meaningless.

That, I believe, puts the task of "finding the balance" between conservation and production squarely back in the hands of society and its elected officials. Society has put abundance ahead of productivity. That is a decision that society, of course, is free to make. But we are seeing the results of that decision in the newspapers, and especially in the faces of those we are asking to shoulder the entire burden for a societal decision.

The fact is that there has been far more energy and money spent arguing about the problem than it would take to fix it. I refer, of course, to a one-time expenditure of about $400 million dollars to buy out half the fleet both in New England and in the Mid-Atlantic. We must not allow ourselves to be duped into thinking that the ocean's soon-to-be abundance will result in productivity which will sustain a thriving fleet at its present size. And despite the frequent references to some future paradise "when the stocks are restored," the Sustainable Fisheries Act will still forever change the old formula of supply and demand for the fisheries. That is the political hoax and the mathematical swindle. The rhythms of the ocean will not be legislated into perpetual, perfect stability.

And here, we must come back to words and their power. It is time to put aside the convenient, demonizing labels. Fishermen plundering the resource. Trawlers destroying everything in their path, leaving a barren moonscape. Monster vessels scooping up the bounty of the sea. That rhetoric may be useful for getting media attention, or for fund-raising, but it does not accomplish much, and its inaccuracy saps energy in rebuttal, and distracts us from the real issues.

If we want an abundant ocean, and are willing to forego some of its productivity to achieve that, if we want marine protected areas, more fish for recreation, or for aesthetic enjoyment, we need to solve the problem. Fishing, frankly, isn't much fun anymore, and is making a painful transition from a lifestyle to a business. Lifestyle is no longer an issue. It's just business. And being just a business, it can be addressed by money. And incidentally, whether that business will be controlled by corporate giants is another issue for another hearing.

But in the meantime, realize that the problem is really rather simple. A fleet was bloated by the tax policies of the 1980's, critical fishing grounds were lost to Canada in the World Court decision in 1984, and now the laws of supply and demand have been revoked. The industry has been forced to shoulder its share of the burden for these things. Considerable revenue has been foregone, and many have left and more will go. Now it is time for society in general, the taxpayer, to stop demonizing and labeling and shirking its responsibility, and pay for the remaining share—the balance, if you will—of the cost of getting what it wants. $400 million dollars is the cheapest way out of this mess.

A Perspective on Fisheries Science

The overuse of mathematics has long been a detriment to good fishery management, but in recent management decisions under the Sustainable Fisheries Act, the problem has become far more acute.

This issue is more fully explored in the attached talk given in Halifax in December, 1998, and need not be repeated verbatim.

Nevertheless, it is apparent to many of us that the National Marine Fisheries Service must become a secondary player in the job of providing science for fishery management. The mindset of the Agency is simply too academic, and NMFS is patently unwilling to adapt to the needs of fishery managers. All too often, rules go

into place based on information that is well over two years old, and this is simply not acceptable. Please see the attached article, "Ecology, Bureaucracy and Differential Equations," by Professor Jacquie McGlade, from Mathematics Review.

Fishery managers need information which is timely and accurate. The precision of that information is less important than its general accuracy. We have had one instance after another when the situation on the fishing grounds is entirely different from that which has been described by the stock assessment community. We simply can no longer work on their schedule, and they show no willingness to change. For that reason, NMFS' scientific personnel should pursue fishery science on a larger scale, more academic in nature, and the Councils should be the ones to determine what information is needed for management now. And the Councils must be given sufficient budget to work with the industry and their university partners to get the information they need when they need it.

A Few Suggestions

The definition of "Fishery"

In the Sustainable Fisheries Act's definitions, a "fishery" is defined as "one or more stocks of fish which can be treated as a unit for purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreational, and economic characteristics."

One of the most serious difficulties facing the fishing industry is the interpretation, by the National Marine Fisheries Service, of the word 'stock' to mean only one species of fish, and 'stock,' in that interpretation, to mean only different bodies of that one species. For example, a Georges Bank stock of cod and a Southern New England stock of cod. The current interpretation does not permit an understanding of "fishery" to include several species which occupy the same ecosystem. This interpretation is in place despite the fact that some Fishery Management Plans cover several species.

We cannot believe that Congress intended this as NMFS interprets it.

This interpretation has led to fundamental absurdities, the most egregious being a standard for fishery management which holds that all species must be simultaneously at a level which can produce maximum sustainable yield. This, of course, is impossible. The cycles and fluctuations of the ocean environment, as well as pure anomalies, render this situation not just impossible, but ridiculous. Politically, it also makes every species a potential "snail darter," if that species happens to be on a low part of its cycle. When areas are closed to protect one species, all other fisheries in that area are closed as well, usually, simply because fish are generally caught together.

A good example is dogfish, a small coastal shark. For fifteen years or more, fishery managers have been castigated (sometimes by Congress itself) for allowing an ecosystem to develop which is dominated by this species, which competes for food with other fish such as cod and flounder. Now, however, we are being told that the Sustainable Fisheries Act requires us to maintain the dogfish resource at a level which is nearly five times what it was when the ecosystem was in far better condition. In 1965, the 'good old days' of groundfish abundance, the biomass of dogfish was about 100,000 metric tons. We are now being told by the National Marine Fisheries Service that the law requires us to maintain the dogfish biomass at approximately 500,000 metric tons. We cannot believe that Congress intended this, or that this level of biomass will not be without its price for the other species we are trying to restore. Please see the appended NMFS graphic on the dogfish resource.

The same counter-productive interpretation has been given to National Standard 3, which says that "interrelated stocks of fish shall be managed as a unit or in close coordination." But at the same time, Congress has told us to take into account "the interaction of the overfished stock of fish within the marine ecosystem" (section 304 on Rebuilding Fisheries).

Fishery managers must be given the flexibility to make decisions which are guided by good judgment and experience, and not simply a mathematical formula which states, and an Agency which demands, a hypothetical mathematical maximum for every species simultaneously, without regard for any relevant circumstances.

To provide that flexibility, it would be very useful if the "Definitions" section of the Magnuson-Stevens Act were clarified, by whatever device, to include ". . . or interrelated species" in the definition of "fishery," so that it would read, "one or more stocks of fish, or interrelated species, which can be treated as a unit . . ." This clarification of Congressional intent would be a significant help to fishery managers.

In this way, fishery managers will be able to bring to bear their experience, judgment and wisdom, as they were intended to do. This will make the job of achieving the "greatest national benefit" from our ocean resources, as the law intends.

National Standard 4 and State-by-State Quotas

National Standard 4 prohibits fishery management plans from discriminating between residents of different States. Congress' intent, in addition to fairness, was to keep the fishery management process from simply becoming a parochial grab for fish.

In a remarkable bit of sophistry, some plans allocate quotas to states. The worst example of this is the plan for summer flounder (fluke), in which nearly 50 percent of the quota is allocated to the states of Virginia and North Carolina. Fishermen from different states fish beside each other in federal waters, but one fisherman may only keep 100 pounds, while another may be able to keep 10,000 pounds. The states, in turn, refuse to issue landing permits to residents of other states, although the structure of the permitting process is carefully tailored to avoid the appearance of discrimination. It simply works out that way. Both Massachusetts and Connecticut have sued the Secretary over such plans. And whether or not anyone wants to admit it, a 'payback' mentality has developed in the different regions—"you do this to us on fluke or groundfish, we'll do that to you on squid or whiting." This is never on the record, of course, but it is there, like it or not. In the near future, we may see a similar exchange on mackerel and herring, unfortunately. And the fisherman is always the one who suffers in this atmosphere.

The only cure for this insidious practice is to prohibit the allocation of quota on a state-by-state basis. Congress must do it now, and require FMP's which follow this practice to be changed within one year.

Council Appointments

At one time, it mattered little which Council—New England or the Mid-Atlantic, had jurisdiction over a fishery. Since the rules applied to all (fish size, net size, etc.), a measure of comfort was obtained from the idea that the 'other fellow' would also have to live with whatever rules he put on me.

That has changed as the fishery management process has become more and more allocative. (This issue is related to the problem of state-by-state quotas.)

One partial cure is to reserve seats on the New England Council for New York and New Jersey, and on the Mid-Atlantic Council for Connecticut and Rhode Island. An alternative is to have each Council designate two members to the adjoining Council who will have full voting powers.

Joint Fishery Management Plans

Once again, allocation issues have changed fishery management dramatically in recent years. And although joint management plans are cumbersome, as we have seen in the FMP for Dogfish, joint management is essential for fairness. An easy cure for the problem of conflict is to change the SFA so that a majority of the two Councils combined would suffice to submit a plan to the Secretary. At present, each Council, by a majority, must approve a joint plan.

The Precautionary Principle and National Standards 2 and 8

The Precautionary Approach may be appropriate for management, but it is never appropriate for science. The application of 'precaution' to scientific calculation is nothing more than the politicization of science. And yet the National Marine Fisheries Service requires this in the notorious 602 guidelines. Furthermore, in the treaties to which the United States is party, the application of the Precautionary Principle is not required when dealing with purely domestic fisheries.

In addition, those treaties do not confine the application of the Precautionary Principle to simply biological issues. Socio-economic considerations are also appropriate, but no "Control Rules" analogous to those for biological concerns have been developed which would assist fishery managers in dealing with National Standard 8. Please see the appended letters to Penny Dalton and Patricia Kurkul.

Attachment 1

FROM SCIENCE TO ILLUSION: MATHEMATICS IN FISHERY MANAGEMENT

James O'Malley

(Originally printed in Pacem in Maribus XXVI, International Ocean Institute)

Crisis of Knowledge—Halifax, November 29–December 3, 1998

Just so that there is no possibility of misunderstanding, I should tell you first that I am a representative of commercial fishermen, and their advocate. The East Coast Fisheries Federation membership is centered in the New England and Mid-Atlantic

area of the U.S., and we fish everywhere from the Gulf of Maine and Georges Bank to Cape Hatteras and the Gulf of Mexico. The vessels in the organization are both "wetfish" boats, bringing in fresh fish every few days, and freezer trawlers. Most are in the range of 20–40 meters, owner-operated, with crews of five or six. That information may help you understand some of my remarks, as well as my attitudes.

It was said of Defense Secretary Robert MacNamara that his devotion to mathematics clouded his vision. And whenever I hear a fishery scientist proclaim that his analysis is "rigorous," I am reminded of what John Galbraith is reputed to have said once to a group of economists: that the prestige of mathematics has given economics rigor, but alas, also mortis.

And the proposition that I put to you today is that the same condition that Galbraith diagnosed in economics has infected the science with which we attempt to comprehend the fisheries and the ocean environment itself.

I am not suggesting to you that mathematics is not a useful tool. But it has become the heart of the system, an intellectual bureaucracy, an end in itself, and an excuse to defer investigation into far broader, more important questions. Once other things are understood, mathematics can help us refine that understanding, expand it, and perhaps even make projections with it. And occasionally—rarely, but occasionally—mathematics helps us understand something that we did not understand at all before.

But what has happened in our attempt to comprehend the oceans is that mathematics has been elevated to a status which suppresses knowledge and actually detracts from our efforts to acquire knowledge.

The best example I can give you of that is fishery management in the United States today. Our recently-amended fishery law, the Sustainable Fisheries Act mandates that the fisheries be maintained at a level which can continually produce maximum sustainable yield. But because ecosystems and interrelationships are poorly understood, each individual species has been thoroughly—perhaps I should say rigorously—analyzed, and regulations passed which attempt to accomplish this maximum for each species. But appealing to the mathematicians among you, I have to ask if it is possible to maximize any equation for multiple variables simultaneously. Can you have an ocean full of every kind of fish at the same time? Of course not. And yet that does not deter anyone in fishery science or fishery management. In the words of Jake Dykstra, we are all too busy calculating our mismanagement to manage properly.

The absurdities and contradictions become Kafkaesque. For over a decade, commercial fishermen have been told that the overfishing of groundfish has resulted in an ecosystem on Georges Bank which became dominated by elasmobranchs—dogfish and skates. Dogfish, especially, is an omnivorous predator whose numbers have severely retarded the rebuilding of groundfish. Now, under the new law, we are faced with the prospect that these elasmobranchs must be maintained at that same, grotesquely unbalanced level—because it is the maximum and therefore desirable.

There are many, many similar examples. A few years ago, an organization in the environmental industry successfully sued the U.S. government over groundfish—haddock, cod and flounder—on Georges Bank. When the fishermen and the managers then proposed the things they knew would work—large closed areas, gear restrictions and the like—the reply seemed always to be that the proposals were not "quantifiable," and therefore unacceptable. And while the managers struggled to find conservation rules for which measured estimates could be made, a dislocated industry seriously depleted several other species which were not regulated or protected at all. This occurred despite pleas from fishermen for basic conservation measures to protect those other species. We were not permitted to put in rules as basic as minimum sizes until the mathematicians had completed their estimates and calculations. I stress that the problem was not mathematics per se, but the place of idolatry we have given it.

And it is idolatry. Like any priesthood, it has developed its own language, rituals and mystical signs to maintain its status, and to keep a befuddled congregation subservient, convinced that criticism is blasphemy. Late at night, of course, many members of the scientific community will confess their doubts. But in the morning, they reappear to preach the catechism once again.

The examples go on. We now try, in fishery management, to protect what is called "essential fish habitat," and this attempt is the clearest proof I know that we have replaced understanding with mathematics. The fact is, we know very little about the habits of fish. And so "essential fish habitat" was designated by reviewing research data to see where the fish have been found, and automatically assuming that, if fish are there, it is "essential habitat" and if the fish are not there, it is not essential.

That approach is roughly the equivalent of proclaiming that Essential Human Habitat is a football stadium on Sunday afternoon, or perhaps a traffic jam during

commuter hours. After all, that's where we find the most people. Bedrooms and kitchens are not essential, because we don't see the aggregations of humans there. Farmland becomes irrelevant. This is a clear misuse of what is supposed to be a scientific tool.

Most frightening of all, our complacent acceptance of this approach shows that mathematics has become a substitute for science. It has become a defense against an appropriate humility, and a barrier to the acquisition of knowledge and understanding of our ocean environments. My rancor is for the misuse of mathematics, not a Luddite reaction based on my own ignorance of the discipline. I have a great respect for mathematicians. And of course, you did hear about the fishery biologist who didn't know his phone number, but he'd be happy to estimate it for you?

When used improperly, mathematics becomes a reason to accept absurdity. We have been given a theoretical level of abundance in the scallop fishery, based on time-honored models of fishery science. That theoretical abundance that we are supposed to achieve is twice what has ever been observed either by the fishermen or the scientists. That maximum was based on what we did know about the growth rate of the animal. But there was no possible way to calculate something called "density dependence," scallops so thick that they are literally suffocating themselves, so the phenomenon was simply ignored in the analyses. But those who have spent their lives on the ocean knew about it, and they were right, as we are now discovering. Scallops smother themselves long before they ever reach those theoretical levels of abundance.

Science, in my opinion, seeks the truth, is humble, and delights in the search for answers. I become very suspicious when the questions themselves are dismissed out of hand because they do not fit into the present analytical techniques, and might prove those techniques to be inadequate. That is intellectual cowardice of the first order. It is a refusal to say "I don't know." It is a demurral from the challenge of saying, "we don't know, but let's find out." It is rigging the game, so that no question can ever be posed which would elicit those answers.

Examples abound, in fact. One of the most frustrating things that fishermen encounter is a drastic change in "scientific" pronouncements based on some minor change in the assumptions that go into the models (and I use that word with some distaste). We have had several instances when the estimate of resource abundance has tripled or quadrupled when that has happened. More recently, some estimates have been replaced by actual measurements, and the assessment again triples, scallops being the most notable of these. This is by no means the reflexive howl of some elements of the industry, "leave me alone, there's plenty of fish." One of the most interesting battles in my area now has to do with the mackerel resource. The industry is convinced that the scientific estimates of abundance are horrifically inflated, and that the allowable catch should be only a quarter of what it is on the books.

I have seen quotas determined to the pound—when thousands of tons are missing or appear without explanation. No one seems to care about the reasons for these obviously-missing fish, or for their mysterious appearance. We are too busy attempting to work the new numbers into the models, no matter that the new numbers may clearly demonstrate the wrongness of the existing models or the management strategies which are based on them.

This problem, of course, permeates society, academia, and government. Things like crime statistics, assessments of our educational systems, the quality of medical care, are all issues in society that we have come to regard as things we understand through mathematics. They are all symptomatic of this malaise, this deference to numerical oligarchy. But haven't you ever wondered, as I have, and the researchers evidently have not, whether we can really rely on these things? When I see some statistic about "promiscuity among today's youth," it is clear that only a mathematician would accept without question, and dutifully report, what a teen-age boy says about his activities in that particular arena. The pseudo-sciences thrive and their practitioners aggregate power, salaries and grant money behind a cloak of mathematics. Nor is the private sector immune. How often have we heard the demise of a perfectly good company summed up this way: "The bean-counters took over."

Worst of all, the malaise is codified. We are told in law and treaty that we must base our decisions on the best scientific information available, but I have begun to think of it, and refer to it, as "the best and the brightest" scientific information, with all that that expression implies. I am, naturally, delighted when a fishery biologist bristles at that phrase.

Criticism is never enough, of course. And there are significant improvements that can be made. There are even signs that it may be happening, just a little. We need to explore and develop alternatives to both the way we acquire knowledge in the fisheries, and more important, what we consider knowledge to be. And I maintain

that mathematics is not knowledge, and may not even be "scientific." It is only mathematics.

We must discover the factors behind the rhythms of the sea. We need to learn the broader truths, about predator-prey interactions, about environmental shifts, meteorological phenomena, food competition in the ecosystem. We pay great lip service to these ambitions, but any progress toward their accomplishment is constantly hampered by the criticism that they are not quantifiable. They do not lend themselves to mathematical exercises.

There is, among the people who are on the ocean every day, an enormous body of knowledge which is largely untapped. We have seen these things, these events and cycles and fluctuations and anomalies. And for the purposes of managing the fisheries wisely and productively, it is quite possible that the best tools may be a working set of post hoc fallacies, combined with judgment, experience and wisdom. The people who are on the ocean every day know that when one thing happens, another is sure to follow. Or maybe not—they know that too. They know it in their experience, their logbooks, their memories. They know it from their fathers and from themselves. They know what a cold winter means next year, or an active hurricane season. They know that the abundance of one species is good reason to expect the abundance or scarcity of another. And they sense cause and effect.

All too often, that knowledge is dismissed as "anecdotal," and not of use in management. And the irony hidden in language here is remarkable. "Anecdotal" is derived from anekdolos, meaning "not given out," or "not published." It does not mean unreliable; it certainly does not mean unscientific, if you realize that the word "science" itself comes not from any allusion to calculation, but simply, "knowledge." But mathematics has hijacked the definition and position of real science. Talk to anyone in the academic world, and ask what would happen if a graduate student submitted something like "The Voyage of the Beagle" or Bigelow and Schroeder's "Fishes of the Gulf of Maine" as a master's thesis. It would be rejected, and with disdain. Why? Because, no matter how bountiful and useful the knowledge—the science—it might contain, it has no calculations, no graphs, no analyses, and most especially, no models. Just a wealth of wonderful information. Totally unacceptable.

We are, fortunately, seeing at least a little bit of movement in the direction of assimilating that wealth of "empirical data" into fishery management, but not without considerable resistance. There are a few research fisheries being conducted now, aboard commercial vessels, financed by set-aside quotas dedicated specifically to underwriting that research. And that research is dedicated to finding the answers to questions which have been posed by those people on the ocean, not just gathering more statistically—valid data.

What is happening out there on the ocean, and why is it happening? What will we do about it?

And that is perhaps the most important question of all. For management purposes, for productivity and conservation, we need broader answers to bigger questions. My most earnest proposal would be to prohibit the use of decimal points in fishery management. That level of refinement is neither useful nor legitimate. It is merely a game, an exercise, and ultimately, an illusion.

We can do better than that. And we owe it to ourselves, to the ocean, and especially to science itself, to assemble that great body of knowledge, those millions of observations, and to use every tool, including mathematics, to further our understanding of that knowledge. Knowledge and understanding are not the same. They may, in fact, be separated by a wide chasm. Mathematics is neither knowledge nor understanding. It may be a useful tool to help us bridge that gap. That is where it belongs, that is how we should use it, and we need to start now—before the beancounters destroy us all.

Thank you.

Attachment 2

EAST COAST FISHERIES FEDERATION, INC.,
Narragansett, RI, December 15, 1999.

Ms. Penelope D. Dalton,
Assistant Administrator for Fisheries, NOAA,
National Marine Fisheries Service,
Silver Spring, MD.

Dear Penny:

As you know, the United States is adopting the Precautionary Principle (cautiously) in fishery management. We have, for example, agreed to employ the pre-

cautionary approach, when appropriate, through the Code of Conduct for Responsible Fisheries. When that treaty comes into effect, of course, it will be voluntary, since all nations have reserved the right to apply the precautionary approach, or not, in their own domestic fisheries, as circumstances dictate.

We have also committed to its use in the case of multinational stocks through the Treaty on Straddling Fish Stock and Highly Migratory Fish Stocks. That is entirely appropriate, because the resources of other nations are involved. And although it is not (and should not be) incorporated into United States domestic law, it is a rational policy when used properly and not subject to political manipulation.

We have, however, not gone nearly far enough in considering its application to fishery management, because we are only looking at it as a biological imperative.

Both the Responsible Fishing treaty and the Fish Stocks agreement require signatories to consider social and economic factors in fishery policy. In fact, in neither document is the use of the precautionary approach confined to biology.

The United States should take the lead in the development of measures to apply the Precautionary Principle to social and economic considerations.

This would not be a daunting task, but it would be an important one. Control Rules analogous to such measurements as biomass goals and thresholds, in economic terms, would be easy to identify.

For example, a certain level of productivity and profitability is necessary for fishermen to pay their bills, put groceries on the table, and the like. But a critical threshold in such analysis would be whether or not vessel maintenance is being performed, whether or not the vessel itself is technically "profitable," whether or not the vessel's amortization is accounted for, and eventual replacement is possible. All of these economic points are analogous to the various measures in the biological control rules. Similarly, analyses should be undertaken to determine if management measures are preserving the character of coastal communities, or changing them irrevocably.

I fully understand that the Precautionary Principle is not usually thought of in these terms, but it is time they should be. The essence of the Precautionary Principle is to take action before damage is done from which we will not recover.

The loss of a fleet, an industry, the people in it, the infrastructure, the markets, the social character of our coastal communities—all demand equal treatment with purely biological concerns. Once we lose any one of them, we will not recover.

Furthermore, I firmly believe that Congress had exactly these concerns in mind when they incorporated National Standard 8 (communities) and even National Standard 10 (vessel safety) into the Sustainable Fisheries Act. I also believe that we, and all signatory nations, are obligated by treaty to expand the Precautionary Principle to economic and social concerns, and the United States should take a leadership role in that endeavor.

I hope to hear from you that you agree that this is an appropriate undertaking for the National Marine Fisheries Service and its researchers and analysts. I would be very pleased to participate and assist in any way that I can, and I am certain that many, many other fishermen will be very willing to help.

I look forward to your reply.

With regards,

JAMES D. O'MALLEY,
Executive Director.

Attachment 3

EAST COAST FISHERIES FEDERATION, INC.,
Narragansett, RI, December 15, 1999.

Ms. Patricia A. Kurkul,
Regional Administrator,
National Marine Fisheries Service,
Gloucester, MA.

Dear Pat:

I recently made the remark that fisheries science, as presented to the Councils, was "politically massaged," a comment that you found offensive. I regret that the circumstances did not allow a fuller discussion, and this letter follows as a result. (Parenthetically, I think it's a serious sign of overwork when I have to remind you of which of my remarks you find offensive.)

Fisheries science is, of course, politically massaged. The astonishing thing is that those who practice that manipulation are proud of it, believe it to be their duty, and say so on the record. This applies not only to NEFSC personnel, but members of

the Council staffs, the Overfishing Definition Panel, and the Science and Statistical Committees. I refer, as you may have anticipated, to the practice of applying the Precautionary Principle to fishery science.

First of all, the precautionary approach is not part of any United States domestic law, and only applies internationally on a voluntary basis (the Code of Conduct for Responsible Fisheries), or when straddling stocks are involved (the Fish Stocks Agreement). In fact, no country that I know of has committed itself to the compulsory application of the precautionary approach in their own fisheries, without reserving the right to suspend the use of the precautionary approach for good reason.

I do understand, though, that Andy Rosenberg recently told Congress that we ought to incorporate the precautionary approach into the Magnuson Act. NMFS guidelines and Agency attitudes, however, treat this principle as though it were already law; but that is just another example of a bureaucracy assuming the power of lawmakers, and substituting its judgment and ambitions for that of the Congress. If the Congress or the citizenry tolerates that, shame on them.

The reason that the precautionary approach constitutes 'political massaging' is that the Councils are always presented with single-point calculations, into which the various assessment scientists have already incorporated the precautionary approach. They have said so on the record, proudly, on any number of occasions. This has been true of every model from 200,000 metric tons of adult female dogfish, to 8 kilograms per tow of scallops, to discard mortality estimates for fluke. The effect is especially pernicious when proxies are used for the various biological targets, as we have seen when "scientific" models are replaced with real measurements.

Every variable and every assumption going into the models is guided by the precautionary approach, and the most conservative and pessimistic projections result. The net effect is "science" determined by political ideology. Ironically, I have been just as critical of "scientists," in years gone by, who painted too rosy a picture for political purposes. Either one is simply bad science. The net result is absurdity, and bad management.

More insidious is that this practice makes the entire process of fishery management a technocracy, accountable to no one, and renders the Congress and the Councils irrelevant. Some see that as a desirable goal, of course.

But the fact remains that the use of the precautionary approach only has credibility as a management tool, not as a 'scientific' one. And the only way that fishery scientists will regain their credibility is when they present a range of conclusions to the Councils—at which point, they will be more than welcome to describe one or another measure as "precautionary" or not.

But to incorporate a politically-based conservatism into the "science" of fishery management discredits all science by turning it into mere ideological advocacy.

I am sure you will have a rebuttal, and I look forward to receiving it.

With regards,

JAMES D. O'MALLEY,
Executive Director.

Attachment 4

Differential equations + bureaucratic delay = chaos

ECOLOGY, BUREAUCRACY AND DIFFERENTIAL EQUATIONS

Jacquie McGlade

Mathematics Review, April 1994

And now here is the shipping forecast for 0600 hours . . . Cromarty: 6, 1027 and rising . . . Dover: gale force winds rising 1000 and 50 . . ., John Stochasky looked out to sea once more and then got his gear ready to go. A few phone calls later the crew was alerted and as darkness began to fall they were ready to cast off for another trip. This activity had not gone unnoticed. Brendon McCart and his crew were soon on the dockside on the Rose-Marie and steaming out of port hard on the heels of the Lady Dawn*. Charts were brought up, courses set and the chase was on.*

But who was chasing what? John Stochasky had made his decision to go south towards the Dogger Banks and hunt for flatfish; Brendon knew that John Stochasky, as one of the local highliners, was onto something and it was always worthwhile chasing him. 'Where're diddling John?' 'Is that you Brendan? Oh I thought I'd go north about.'

Two hours later, as the two skippers moved offshore into the North Sea, large orange blocks began to appear at the bottom of the echo-sounder screen on the Lady

Dawn. There was a massive surge of activity on deck, and in the freezing rain nets were set, ropes cleared and the massive winches and hauling gear put into action. Trawling the nets behind the vessel John Stochasky kept a close eye on other vessels in the area and laughed to himself when he soon got a call. 'What you getting now John?' came the voice over the radio. 'Oh only a few baskets Brendan, I'll be moving on soon.'

With no signs of large schools of fish on their sounder, Brendan and his first mate decided that the Lady Dawn was only checking gear and set their own course for a well known groundfish area 30 miles north. They knew others were fishing there, though with limited success. As they steamed over the horizon, the Lady Dawn completed a large haul, turned south and headed off towards Dogger Bank. Over the next two days, John Stochasky saw only three other vessels; he had short radio transmissions with other vessels but the information was coded so that only those within the group could decipher the information.

Sailing back into port three days later, the Lady Dawn jostled heavily in the water alongside the Rose-Marie. With their catches landed it was simply a matter of talking to the processors and auctioneers and watching the bidding. The difference in profits between the Lady Dawn and the Rose-Marie was threefold; enough for John Stochasky to buy a new side-scan sonar and satellite positioning gear, plus new freezing equipment, thus enabling him to hunt for new sources of fish in deeper areas further afield.

Managing fish stocks

John Stochasky was obviously acting in a different way from Brendan McCart, taking more risks by going to an area for which he had little information about catch rates. Brendan McCart adopted a low-risk strategy by going to sea at the same time as a known highliner, but then going to a fishing ground where there were already many boats fishing and for which he had some information about catch rates, even though they were very low.

Imagine this picture repeated again and again, and you can begin to see how complicated it is to manage fish stocks from year to year. So where does mathematics come into the picture?

To manage stocks of fish we must try to interpret the natural fluctuations in fish populations and the possible effect of fishermen's activities on these changes. And to do this we need to build up some simple mathematical models. In particular we must examine the changes in fish populations, the changes in the numbers of fishermen and boats from different fleets, the amount of time spent fishing at sea, the quantity of fish caught from different areas, the price fishermen get at the dockside and the price paid by the consumer. We also need to take into account the fact that prices depend on supply and demand, and also vary with the cultural identity of the consumer population and their response to price changes. For example, when the Vatican announced that Catholics were no longer obliged to eat fish on Fridays, there was a dramatic effect on fish consumption in places like Boston, where there is a very large Catholic community.

Building a model

So let's start with the fish populations themselves and look at the data from a typical fish population as it changes through time. In Figure 1 we see that the number of fish caught from a population is not constant, but changes from year to year. This is because fish die variably from disease, predation by other fishes, and of course old age. If we were to look at how a group of fish all of the same age alters through its lifetime, we would see that in the first year of life nearly all the fish die off; this is because, when young, they are very vulnerable to changes in conditions in the ocean and are also tempting meals for larger fishes. As the fish grow, the death rate or mortality decreases and eventually becomes almost constant. But at a certain age they are able to reproduce, and begin the cycle again. So if we think about changes in the whole population, we will need to consider births, growth and deaths. We can do this by using a differential equation, the so-called 'logistic growth equation':

$$\frac{dx}{dt} = bx\left(1 - \frac{x}{N}\right) - mx \qquad (1)$$

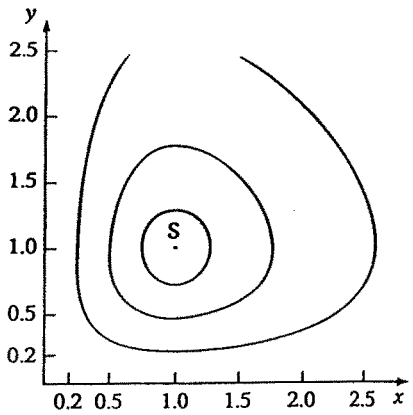


Figure 1 Periodic solutions of the Lotka-Volterra model obtained for different values of the initial conditions.

where x is the number of fish in the population, and so dx/dt describes how fish numbers change through time. The b is the birth rate of fishes, N is the maximum number of fish the environment can sustain, and m is the death rate. Notice that this equation is almost the same as the differential equation

$$\frac{dx}{dt} = (\text{birth rate} - \text{death rate}) \times x \qquad (1')$$

which was discussed in *Mathematics Review* Vol. 4, No. 1, pp. 6–8 (where it appeared as equation (3)). The only difference is that in equation (1) we have incorporated the factor $(1–x/N)$, it reflects the fact that if the population increases so much that it drawns near to N, the birth rate drops off to zero. Correspondingly, if the population is very low, so individuals do not have to compete for scarce resources, the birth rate is relatively high.

Long-term trends

But there are also some very large, underlying trends in the fish population data which need to be explained. To describe these mathematically we need a mathematical model that will predict similar long-term behaviour. One of the most straightforward models focuses on the interaction between the fishermen and fish. Here we have a predator (fishermen) and prey (fish). The equations for predator-prey interaction have been studied for a long time. They are called Lotka-Volterra equations after the two men who first developed them (independently). In fact Volterra's original work was performed in connection with the periodicities he had noticed in the populations of fish species in the Adriatic Sea, where he liked to go fishing. Lotka was a chemist, and he obtained the same equations in a study of chemical reaction rates. Their idea was that there are not one but two populations we should be looking at. Let y be the number of fishing boats putting out to sea; it's reasonable to assume that the catch of each boat is proportional to the abundance x of the fish; say it is sx (where s is the constant of proportionality). Then

the net effect of the fishing is to diminish the fish population x by sxy per unit time. Thus equation (1) becomes

$$\frac{dx}{dt} = bx\left(1 - \frac{x}{N}\right) - mx - sxy \qquad (2a)$$

But now notice that not only do the fishing boats affect the fish population: the abundance of the fish, x, affects the likelihood of each boat putting out to sea. If x is high, then y will increase, while if x is low, y will decrease. So we have *another* equation

$$\frac{dy}{dt} = rxy - ny \qquad (2b)$$

where r and n are two new constants of proportionality. The term $-ny$ on the right hand side of (2b) is there because the more fishing boats are out at sea, the greater is the competition among fishermen and the smaller their catch. If the number of boats out at sea is too great, fishing ceases to be profitable and boats will start to return to port. I have called the two equations (2a) and (2b) because they are really part of a pair of simultaneous differential equations. Neither can be dealt with separately from the other, because there are now two unknowns, x and y, as well as time t, and as is clear from the equations, x affects y and y affects x.

Rapid reassurance. The solution of equations like (2) is not part of the A-level syllabus! In fact you don't need to solve them to learn a lot from them. Indeed, nowadays nobody looks for explicit formulae for the solution of differential equations like (2a) and (2b). For one thing, computers can produce what are called *numerical solutions*. Because of its huge number-crunching capacity a computer can come up with a set of figures that describe the solutions of the equations. It can even plot them on a graph. It doesn't have to solve the equations, in the sense of finding a formula, in order to do this. If this seems impossible, just look back at the article on differential equations in *Mathematics Review*, Vol. 4, No. 1, pp. 6–8: there you were encouraged to draw the graphs of solutions of a differential equation, guided just by the alignment of the tangent lines. Clearly, you didn't need to know a formula for the solution to be able to draw the graph. A computer produces a numerical solution to a differential equation in rather the same way.

Moreover, a whole variety of mathematical techniques has now been developed for obtaining *qualitative* information about solutions without actually having to obtain formulae for them. The kind of qualitative information sought is, for example, what the long-term behaviour of the solutions will be, whether they will settle down to constant values or continue to fluctuate periodically, how sensitive they are to changes in the initial conditions, and so on. Using such qualitative information, together with numerical solutions produced by computer simulation, mathematical ecologists can check to see if the equations they come up with, like (2), really do model successfully the phenomena they are investigating, such as the predator-prey interaction in the case of (2).

Solutions to equations like (2) can be represented in the plane, with x and y standing for the populations of prey and predator respectively. Both x and y are functions of time t, so for the moment let us write them as $x(t)$ and $y(t)$. As t varies, the point $(x(t),y(t))$ traces out a path, which we can draw. In Figure 1 we show several such paths. Figure 2 shows a sequence of real measurements of the numbers of fish and fishing boats out at sea over the years 1969–1980. Although it is a lot spikier than the curves in Figure 1, the cyclic behaviour is clear.

Some qualitative information is easy to come by. For example, looking at equations (2a) and (2b) we can easily find some *constant solutions.* If $rxy = ny$ then $dy/dt = 0$, and y is constant; assuming y is not zero, then $x = n/r$. Now substitute $x = n/r$ into equation (2a). We get

$$\frac{dx}{dt} = b\frac{n}{r}\left(1 - \frac{n}{rN}\right) - m\frac{n}{r} - s\frac{n}{r}y$$

So in order that dx/dt be equal to 0, we must have

$$y = \frac{1}{s}\{b(1 - \frac{n}{rN}) - m\}$$

Thus,

$$x = \frac{n}{r}$$

$$y = \frac{1}{s}\{b\left(1 - \frac{n}{rN}\right) - m\}$$

is one constant solution. It corresponds to the point marked S in Figure 1. There are others: I leave you to work out what the possibilities for x are if $y = 0$. But the constant solution with neither x nor y equal to zero is the most interesting. Now what happens if (x,y) is near, but not equal, to the constant solution S? In Figure 1, nearby solutions are seen to be closed curves which circle around S. In terms of the situation we are modelling, this means that the populations of both predator and prey undergo periodic fluctuations, somewhat out of phase from one another. This is shown in Figure 3 produced by computer simulation. And this is exactly what Volterra found (to his surprise): the equations predicted cyclical fluctuations in the populations of predator and prey. At that time (in the 1930s) people had noticed the existence of periodic fluctuations in fish populations. But they had put them down to recurrent epidemics, or simply unexplained 'good' and 'bad' years. The fact that Volterra's equations actually predicted such fluctuations came as a surprise, since most people believed that 'all other things being equal,' populations would tend to some kind of stable equilibrium. The equations helped people to understand that the stable situation involved a kind of 'simple harmonic motion' in which each population fluctuated up and down.

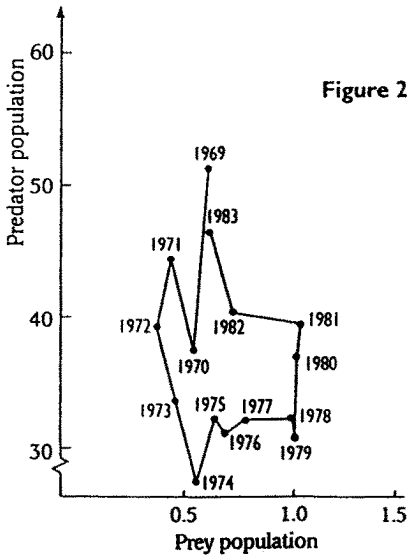
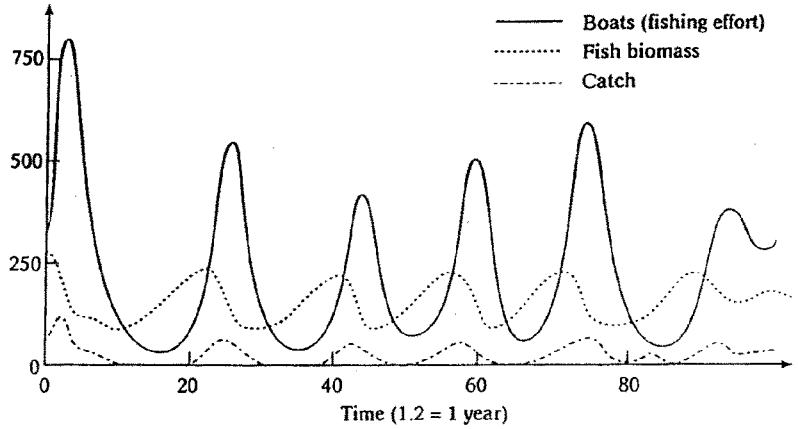


Figure 2

Figure 3 **Results of computer simulation, using the Lotka-Volterra equations.**



The interaction between predator and prey can be understood in the following way: imagine that you are pushing a swing. When the swing is at its lowest point and you push it hard, it will go higher than if you push it when it is half-way down. So the fishing boats tend to reinforce the fish population cycles, increasing when the fish numbers increase and declining when the fish population falls. The result can be quite dramatic. In Figure 3 we see how the system amplifies or enlarges the natural fluctuations in the fish population and sets itself into relatively violent oscillations. The fishermen then have to respond to these *boom and bust cycles*. This makes for a cycle that looks just like the one in Figure 4, for the haddock fishery off Nova Scotia in Canada.

Management of fishing

Now we add a new character to our mathematical drama: the civil servant.

From the point of view of both the fishermen and the consumer, drastic fluctuations of fish populations are highly undesirable, so there are government agencies charged with regulating the amount of fishing done.

But unfortunately, what has happened in many fisheries is that the managers themselves have actually made the situation worse by intervening in these cycles. When the fisheries scientists collect information about the size of the fish populations, it takes time to process the data and produce an analysis. Then there is an additional delay between agreeing on a level of catch or quota that the fishermen are allowed to take and putting it into action. In some areas fishermen are being regulated by information that is sometimes as much as two years out of date. And when this happens the fishermen might find themselves fishing in a way corresponding to increasing population sizes when in fact the fish populations are in a declining part of the cycle. Or vice-versa.

Understanding the mathematical behaviour of the model enables us to show that when the population of the predator is increasing faster than that of the prey, the subsequent crashes can be far worse than if they were moving together in phase. Seen from the perspective of the fishing industry, left to jump from one crisis to another, using the wrong mathematical model can often mean that no management would be better than management based on out-of-date information.

Two types of fisherman

A fisherman's job is to hunt and search for fish, catch it and return it to dock as a product that can be sold at a good price. But as our excerpt from a fishing log showed, some fishermen are stochasts (high-risk takers) while others are cartesians (low-risk takers). These types respond differently to the same information; a stochast will move quickly to a new area even if there is only sparse information about good catch rates. A cartesian, on the other hand, will need lots of convincing

to go somewhere else. The tendency to move relies on an individual fisherman's natural inclination, plus the information he gets from other members of his fishing fleet. Add a touch of superstition and incorporate all of this into the mathematics we were discussing above, and you have the mix that makes up a very interesting model!

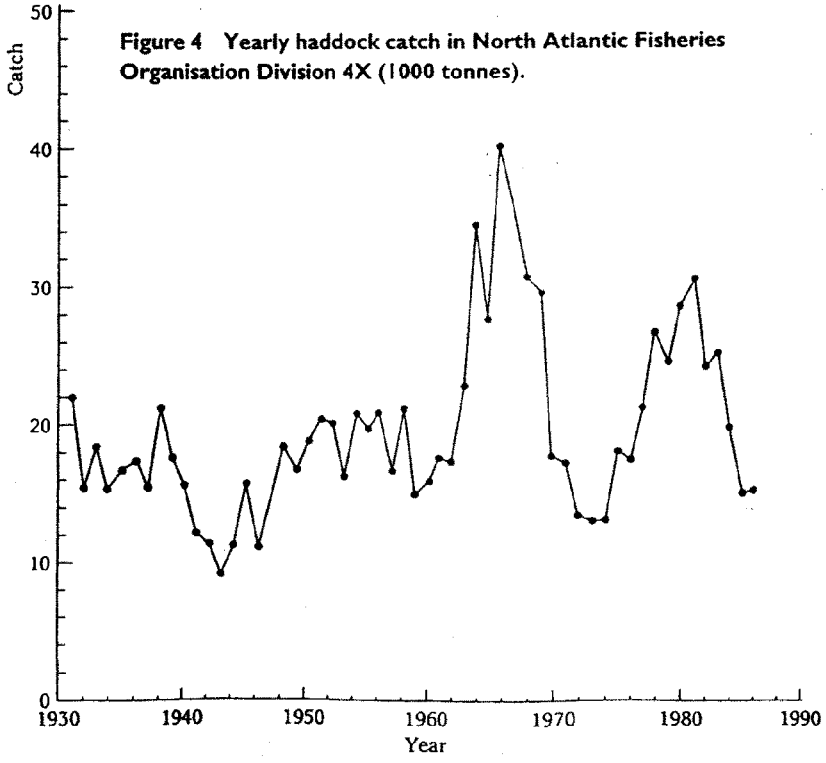
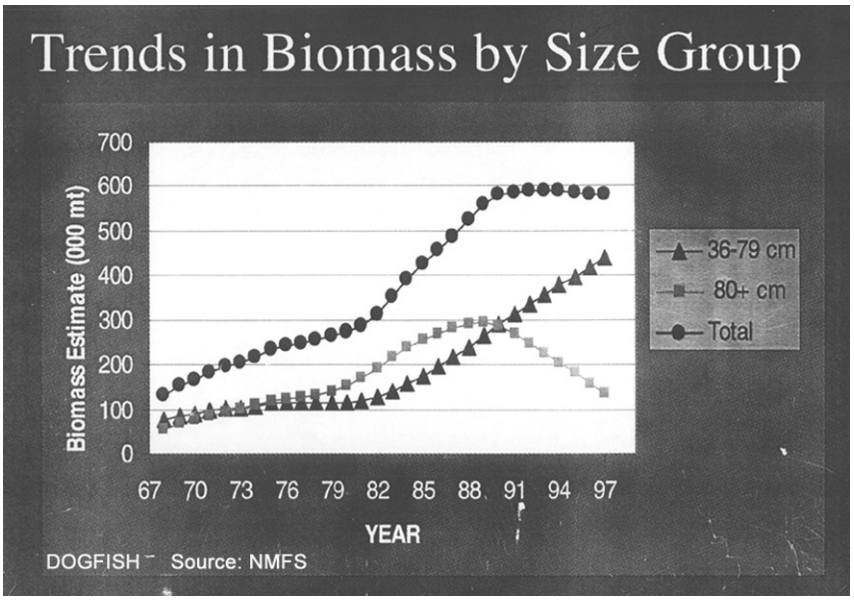


Figure 4 Yearly haddock catch in North Atlantic Fisheries Organisation Division 4X (1000 tonnes).

Further reading

The Lotka-Volterra equations are discussed in Chapter 7 of Burghes D.N. and Barrie, M.S. (1981) *Modelling with Differential Equations*, Ellis Horwood, and also in Maynard Smith, J. (1991) *Evolution and the Theory of Games*, Cambridge University Press.

Attachment 5



Senator SNOWE. Thank you. Excuse me. I have to ask the audience: I know there are a number of people who want to continue to speak, and we're going to have to limit the time of each speaker. We only have ten or 15 minutes left. So I would appreciate it if everybody will be conscious of the clock. I know there are a number of other people who would like to speak, and I would like to accommodate everybody. The record will remain open for ten days. So thank you.

STATEMENT OF WILLIAM R. PALOMBO,
PALOMBO FISHING CORP., NEWPORT, RI

Mr. PALOMBO. Chairman Snowe, I'm Bill Palombo, Palombo Fishing Corp. I have been involved in the off-shore lobster fisheries since 1971 and now own five off-shore lobster boats operating out of Newport, Rhode Island and Gloucester, Mass. I also own and operate a 17,000 square foot wholesale lobster distribution plant called Boston Wholesale Lobster Corp.

And frankly, I have been very disturbed by the total lack of responsibility that both NMFS and the Council have assumed in management of the lobster fishery, one of the most important fishery resources on the coast.

Since 1991 I have been asked by the bodies that are responsible to manage these resources to participate on two separate LCMT teams. We were asked to come up with a consensus among lobstermen to responsibly manage this lobster resource. Both times I along with fellow lobstermen after spending many hours of our time at our own expense came up on two separate occasions over many years with plans to manage the lobster resource. These plans

caused the least disruption to the actual practice of how the catch was being harvested, while at the same time meeting conservation goals. Unfortunately, these plans weren't implemented and a plan now is implemented.

I'm going to skip the rest of my remarks only to say that what we think at this point is that we think that the ITQs and IFQs are a very important part of the management plan. And we think that they need to be incorporated in the reauthorization because at this point every tool is needed to be available.

And that's all I have to say. I'll submit my written remarks.

Senator SNOWE. Thank you. I appreciate it.

[The prepared statement of Mr. Palombo follows:]

PREPARED STATEMENT OF WILLIAM R. PALOMBO, PALOMBO FISHING CORP., NEWPORT, RI

I have been involved in the offshore lobster fishery since 1971 and now own five large offshore lobster boats operating out of Newport, RI and Gloucester, MA. I also own and operate a 17,000 square foot Wholesale Lobster Distribution Plant, Boston Wholesale Lobster Corp., in Lynn, MA. Frankly, I have been very disturbed by the total lack of responsibility that both NMFS and the Council have assumed in the management of the lobster fishery, one of the most important fishery resources on this coast.

Since 1991, I have been asked by the bodies that are responsible to manage these resources to participate on two separate LCMT's. We were asked to come up with a consensus among lobstermen to responsibly manage this lobster resource. Both times, I, along with fellow lobstermen after spending many hours of our time and at our own expense, came up, on two separate occasions over many years, with plans to manage the lobster resource. These plans caused the least disruption to the actual practice of how the catch was being harvested while at the same time meeting conservation goals laid out by law.

Today we find ourselves about to operate under a plan that does not reflect the concerns and recommendations of either, the LCMT's, the fishermen or the conservationists. A plan that has the potential of adding fishing effort rather than decreasing fishing effort because it does not reflect and require historic participation levels. A plan that can not pass the Government's own guidelines for decreasing mortality. And now we may be continuing to ban a tool (ITQs) that may be necessary to manage our resource correctly in the future.

To a fishing businessman who has been intimately involved in the process and who makes his living from this resource, our Government's actions do not make sense. They further convince me that our Government is not serious about protecting and enhancing our resources. We should have every fishery management tool available to our industry. ITQ's will not be part of any management plan unless there is a widespread consensus in any fishery involved. If they are banned they will not be available to any fishery where they are appropriate for conservation and management.

We have gone through a long consensus building process within our own group Atlantic Offshore Lobstermen's Association of which I was President for 15 years and am now just a member. AOLA is not promoting ITQs in the management plan today but many of us feel that we would like them available to our industry in the future should the vessels involved see the benefits for using ITQs somewhere down the line. A continued ban of even considering them as a management tool flies in the face of logic.

The Lobster Management Teams consisting of industry representatives and scientific technical advisors are charged with the task to develop regulations which, when implemented, reduce mortality and increase egg production of the stock. The offshore lobster industry through AOLA has pulled together to recommend strong and meaningful conservation measures necessary to preserve the resource for future generations. It is my strong belief that no management tool should be taken out of the hands of industry representatives or fishery managers.

STATEMENT OF PAUL E. BENNETT, COMMERCIAL FISHERMAN, RED DEVIL FISH AND LOBSTER CO., INC., MIDDLETOWN, RI

Mr. BENNETT. Good afternoon, Madam Chairwoman, Senator and Committee members. My name is Paul Bennett and I'm a commercial fisherman from New England. I've been an active participant in several different fisheries over the last 28 years, but primarily off-shore lobster. I'm a graduate of the University of Rhode Island's commercial fishing marine technology program. I've been a member of the Atlantic Off-Shore Fishermen's Association, Atlantic Off-Shore Lobster Association and an active participant in the Lobster EMTs process and a member of different advisory groups and a close follower of the recent LCMT process.

I am here today to support the use of individual fishing quotas with transferability and fisheries management. The use of individual fishing quotas is the most direct approach to sound fisheries management. Days at sea and trap reductions are a very indirect approach to managing the various fisheries. I feel that individual fishing quotas with transferability is another important conservation tool which can be used to address each stock's assessment.

Thank you for your time and consideration.

[The prepared statement of Mr. Bennett follows:]

PREPARED STATEMENT OF PAUL E. BENNETT, COMMERCIAL FISHERMAN, RED DEVIL FISH & LOBSTER CO., INC., MIDDLETOWN, RI

Madame Chairman and Committee Members:

My name is Paul Bennett and I am a commercial fisherman from New England. I have been an active participant in several different fisheries over the last twenty-eight years, but primarily offshore lobster. I am a graduate of the University of Rhode Island's Commercial Fishing and Marine Technology Program. I have been a member of the Atlantic Offshore Fisherman's Association, Atlantic Offshore Lobsterman's Association, an active participant in the lobster EMT (Effort Management Team) process, a member of the Gear Conflict Advisory Group, and most recently a close follower of the recent LCMT (Lobster Conservation Management Team) process.

I am here today to support the use of Individual Fishing Quotas with transferability in fisheries management. The use of Individual Fishing Quotas is the most direct approach to sound fisheries management. Days at sea and trap reductions are a very indirect approach to managing the various fisheries. I feel that Individual Fishing Quotas with transferability is another important conservation tool, which can be used to address each stock's assessment. Thank you for your time and consideration.

Senator SNOWE. Thank you.

STATEMENT OF DAVID SPENCER, SPENCER FISH AND LOBSTER, JAMESTOWN, RI

Mr. SPENCER. My name is David Spencer. I've been an off-shore lobsterman since 1973. And in the interest of time, I don't believe I can read my letter in one minute, so I would like echo the sentiments of the two gentlemen before me. I think it's very important that ITQs and IFQs be a management tool available to fishery managers. I think at this day in age with the way all our species are, it is ludicrous not to have that as a management tool.

I'll submit the rest of my comments in writing. Thank you.

[The prepared statement of Mr. Spencer follows:]

PREPARED STATEMENT OF DAVID SPENCER, SPENCER FISH AND LOBSTER, JAMESTOWN, RI

Madame Chairman and Committee members:

I would like to offer my comments on ITQ's and ask that their moratorium in the Magnuson-Stevens Act be lifted.

My name is David Spencer. I am an offshore lobsterman fishing out of Newport, RI. I have fished for lobsters offshore since 1973. I own one boat and lobstering is my sole source of income.

I believe that ITQ's offer fishery managers, scientists and fishermen the simplest and most effective means of managing a resource. In most over fished fisheries today, scientists are tasked with determining how many pounds can safely be removed from a resource each year. They are currently using measures such as days at sea, mesh size, closed areas, trip limits, gauge sizes, trap numbers and a host of others. The problem is that none of these measures are directly related to the current dilemma: How many pounds can safely be removed from the targeted resource. Because there is no clear connection of these management measures to the conservation of the resource, it is very difficult for the managers and scientists to predict the success or failure of these measures in the years ahead. They are constantly playing a catch up game of imposing more and more indirect measures when it has become clear that the goals of conservation are not being met. Consequently, fisherman are burdened with the increased restrictions. This format has created confusion among the fishermen, as well as law enforcement. It has also resulted in fishermen becoming very inefficient and unable to make with certainty any future business plans. This also has made resource recovery a very long ordeal.

Doesn't it make much more sense to tell a fisherman how much product he will be allowed to catch, based on the scientist's projections? This method is simple, give fishermen more flexibility to run his business and be able to plan for the future while still conserving the resource. It also would allow the scientists some surety as to the removal rate of the resource on a yearly basis and make possible to even predict into the future rather than scurrying to make up for past deficiencies. ITQ's are the most direct and expeditious road to resource recovery.

Although I am strongly in favor for ITQ's, I realize that they be more appropriate for some fisheries rather than others. However I do think that they should at least be available to the fishermen, managers, and scientists who feel that they would be appropriate for a particular fishery. At this very critical time for all fisheries it is important that every option be available.

Thank you for this opportunity to comment.

Senator SNOWE. Thank you. Everyone can submit their statements for the record.

STATEMENT OF JONATHAN MAYHEW, FISHERMAN, MARTHA'S VINEYARD, MA

Mr. MAYHEW. Good afternoon. Thank you very much for having me. My name is Jonathan Mayhew, third-generation fisherman from Martha's Vineyard, Massachusetts. I got up at five o'clock this morning.

I'm a full-time year-round commercial fisherman. I own two boats; a 32-foot bluefin tuna boat and a 72-foot dragger, multispecies.

My life has been affected in so many ways by National Marine Fisheries that if we could bottle it and put it in a bomb and drop it in the Middle East we'd have everything solved over there. Just with paperwork.

The thing I'd like to address, unfortunately, is what—I came to speak on a lot of issues, but I have to speak on the fish spotting issue because it's been brought up, and actually, Madam Chair, I'd really like to have chance to speak to you personally because I feel that you have made a decision already.

On whether or not fish spotters should be used. For the past 26 summers I have flown a small single-engine plane over George's

and Gulf of Mexico for tuna and swordfish for my boats as well as others, over 11,000 hours. I wear the hat of president of Atlantic Fish Spotters Association, approximately 20 active pilots with an average of 15 seasons' experience.

I worked from the inception of the New England Aquarium aerial survey started in 1993. Atlantic Fish Spotters fly 43,000 miles annually virtually for free for this survey. The survey has been jeopardized due to lack of funding by National Marine Fisheries for the scientific side. Atlantic Fish Spotters have worked with senate coastal studies, whale disentanglement teams and have assisted in saving numerous marine mammals. Atlantic Fish Spotters also work of search and rescue of sailors and downed pilots.

The first time I personally spoke on stock analysis was in 1982 regarding my alarm over the decline in swordfish stocks. I was a witness to the chief National Marine Fisheries Sciences at that time stated stocks were in excellent shape and would continue to be so into the future. The future is now, and we know the pain in that industry. Aerial surveys have an incredible value in the large species.

As some of you are aware, fish spotters were banned by NMFS during 1997, bluefin tuna season, the general category. We were forced to tie our planes down, organize, raise money and sue National Marine Fisheries, something we did not want to do. We persevered, the regulations were found arbitrary and capricious en todo in June 1998.

And also stated that despite what National Marine Fisheries states, aircraft do assist in size selectivity. I bring this up because my trust in the system has been shaken. It does not seem that National Marine Fisheries—it does seem that National Marine Fisheries is susceptible to lobbying pressures rather than looking at the facts. Spotter pilots and Atlantic bluefin tuna have been used since the 70's. Pilots can and do judge the size of fish. We get by production of keepers. We can't afford to chase shorts, economics or rules. All the boats in the fleet have the ability to realize when pilots leave an area where fish are, there are few if any keepers in that area, thereby assisting the whole fleet for the proper harvest of these fish.

Please listen to both sides before making a decision that I feel is contrary to the Magnuson-Stevens Act and lose this valuable asset. Thank you.

Senator SNOWE. Thank you. How many more people want to speak? Do you have prepared statements that you could submit? Otherwise, I'm not going to be able to accommodate everybody at this rate.

Senator KERRY. How many people are there? Could you all raise your hands? How many of you have prepared statements that you could——

Senator SNOWE. Would you be willing to submit prepared statements, if everybody could keep their statements to 30 seconds?

Senator KERRY. We have to. We have no choice.

Senator SNOWE. We have no choice here.

STATEMENT OF BILL CHAPRALES, COMMERCIAL FISHERMAN

Mr. CHAPRALES. Bill Chaprales, commercial fisherman. Senator Kerry, when you talk about building credibility, that really struck home for me today. And I've been a fisherman for 30 years, bluefin, involved in the harpoon tagging program in the middle 70's. (Auditorium public address system fails during this presentation.)

Senator SNOWE. Thank you. How many more are going to testify? I'm sorry that so many people took longer than their one-minute allotment; that is what created this problem. I'm not going to be able to accommodate everyone, so we'll have to make a decision here. Do people have prepared statements? I have to leave in 10 minutes at the latest, so you can take 30 seconds each. You go right ahead.

STATEMENT OF BONNIE SPINAZZOLA, EXECUTIVE DIRECTOR, ATLANTIC OFF-SHORE LOBSTERMEN'S ASSOCIATION

Ms. SPINAZZOLA. Madam Chairwoman, I am the executive director of the Atlantic Off-Shore Lobstermen's Association and represent approximately 40 off-shore vessels of the approximately 60 vessels fishing in the off-shore lobster industry from New Hampshire and New Jersey.

On behalf of AOLA I urge you to support the recision of the moratorium on IFQs and support the inclusion of transferability in the upcoming reauthorization of the Magnuson-Stevens Act.

We feel very strongly that at this point in the fishery process no tool should be taken away from fishery manager to be able to attain the goals of sustainable fisheries.

And the rest I will submit as written comments.

[The prepared statement of Ms. Spinazzola follows:]

PREPARED STATEMENT OF BONNIE SPINAZZOLA, EXECUTIVE DIRECTOR, ATLANTIC OFF-SHORE LOBSTERMEN'S ASSOCIATION

Madame Chairwoman, Senator Kerry and Senator Stevens:

On behalf of the Atlantic Offshore Lobstermen's Association (AOLA), I urge you to support the rescission of the moratorium on individual fishing quotas, and support the inclusion of transferability in the upcoming reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).

AOLA represents 40 vessels from New Hampshire to New Jersey, within a total of approximately 65 vessels participating in the offshore lobster fishery, and has been significantly involved in developing conservation measures for management of the offshore lobster resource. As you may be aware, the American Lobster fishery was divided into seven management areas, each having a designated Lobster Management Team consisting of industry representatives and scientific technical advisors. These teams are tasked to develop regulations which, when implemented, should reduce mortality and increase egg production of the stock. Our fervent hope is to attain preservation and sustainability of the American Lobster Resource. While I have just made this sound relatively simple, I can personally assure you that this has been, and will continue to be, a grueling and complicated process. It is no secret that agreement among fishermen is not a common occurrence, and balancing the needs of the resource with those of the industry has been complex. The offshore industry, however, has pulled together to recommend strong and meaningful conservation measures necessary to preserve the resource for future generations.

It is the strong belief of AOLA that every management tool should be made available to industry representatives and fishery managers, as the arduous and long-term process of fishery management necessitates the need for flexibility and creativity in order to attain the delicate balance of meaningful management measures coupled with financial security for fishermen. Transferability, when prudently and sensibly incorporated into the management process, is an important option that

should be made available to those endeavoring to sustain our nation's oceans and their resources.

Finally, I would like to comment on two other important fishery issues:

It is clear that collaborative research efforts, utilizing industry and scientists have finally been recognized. With clear understanding that the groundfish resource is in a precarious position and in need of such funding, I would request that sources of funding also be made available for collaborative research in other stocks, as well. For instance, four-year-old lobster data was recently used to produce an extensive stock assessment, and in some areas, stopped short of producing significant results, due to poor or old existing data. Real-time data can and must be realized through collaborative efforts of fishermen and scientists.

The other important issue relates to the National Marine Fisheries Service consuming inordinate amounts of time to implement fishery management plans. In the case of the offshore lobster plan, fishermen are frustrated with the fact that the Service tasked industry with identifying measures to preserve the resource. That plan, which has been technically evaluated to meet the Sustainable Fisheries Act's goal, has been available to NMFS for over two years (actually many more, however I will only focus on recent management action). Due to agency, legal or congressional constraints, however, NMFS will likely not implement a full lobster FMP that meets the SFA requirements for an estimated 3–5 years! Although this Committee may have serious concerns with regard to holding fishermen's lives, their families, and their communities in the balance while waiting for management rules, just imagine how frustrating it is for those fishermen who continue to wait for conservation measures to be implemented yet are forced to sit idly by and watch their resource spiral downward toward depletion, due to the extended process of the very agency tasked to protect and sustain that resource! I hope that through the reauthorization process, this Committee will do everything in it's power to remove any barriers which prohibit NMFS from moving forward expeditiously toward the implementation of meaningful fishery management plans.

In conclusion, I appreciate the opportunity to represent my membership and make you aware of their sentiment with regard to your support of transferability and lobster management in the reauthorization process of the Magnuson-Stevens Act. Please feel free to contact me should you have any questions relative to these comments, or to discuss the issue of lobster management, at any time.

Senator SNOWE. Thank you.

STATEMENT OF WILL BLAND, GENERAL MANAGER, LITTLE BAY LOBSTER CO.

Mr. BLAND. I am going to submit a written comment, but I would like to urge you to lift the moratorium on IFQs. And I have a comment here that I had sent to Senator Kerry and I'll submit it to you too.

Senator KERRY. Thank you very much. Thank you.

Senator SNOWE. I appreciate it. Thank you.

[The prepared statement of Mr. Bland follows:]

PREPARED STATEMENT OF WILL BLAND, GENERAL MANAGER, LITTLE BAY LOBSTER CO.

I am writing to encourage you to support lifting the moratorium on individual Fishing Quotas (IFQ). I firmly believe that in order for our industry to manage the fisheries efficiently and responsibly, a variety of management tools needs to be available to us. An IFQ program is merely one method of many that we may need to employ in order to achieve a sustainable resource.

While it is important to recognize that an IFQ program may not be suitable for every fishery, lifting the moratorium does, however, give fisheries managers a more complete range of options to use while creating a Fishery Management Plan (FMP). The employment of various types of conservation methods, even within the same stock biomass, allows for efficient stock management and harvesting. Additionally, the use of varied management measures across the range of a resource permits fisheries managers to consider not only the biologic, but also the many social and economic concerns that are generally associated with any FMP.

In their report to Congress, the National Research Council (NRC) cited many of these same reasons for lifting the moratorium on IFQ's. Further, the broad-based

response the Council received during the public hearings on the issue demonstrated the industry's recognition that the use of IFQ's as a management tool is a valuable and needed option. Respondents to the Council repeatedly cautioned against treating all fisheries the same and that a "broad-brush" approach to fisheries management was detrimental to promoting localized stewardship within a fishery. The FMP's for American Lobster and Atlantic Herring are good examples of this in that their formulation begins with an area management concept. However, in order to be successful, an area management program must have the flexibility to adapt to the local biological and social conditions, therefore, it is critically important that the managers of these fishing areas have a toolbox full of management measures available to them.

As an individual who has been involved with the fishing industry for over thirty years, I have seen the tragic decline of the fish stocks of the Northwest Atlantic and the resultant demise of New England's fishing industry. In light of that, I am extremely frustrated at how ineffective our attempts at stopping that decline turned out to be. I am convinced that the time has come for a major change in fishery management theory. Our reliance on the reactive input measures of the past such as types of gear and methods of fishing needs to diminish. Instead, we must work toward a clear understanding of our sustainable harvest levels and the further development of enforceable output measures, such as IFQ's. Building the concept of ownership within a fishery is the first step toward developing a sense of resource stewardship within the fisherman. In doing that, we, as fishermen, will become more like the harvesters we should be than the hunters we are.

STATEMENT OF MS. FERRANTE

Ms. FERRANTE. Madam Chair, I'll be brief. I want to thank you and Senator Kerry and Senator Stevens for the work you've done with cooperative research. My father's a fisherman. It's great to see that his input is finally being acknowledged in a meaningful way.

Second, you talked about the need for five management plans and asked why that may be. One way we could get around that is if we had more fishermen's input and cooperative management. Fishermen know where fish spawn, when they spawn, how they spawn, and how to avoid those areas. But unfortunately, that information doesn't get tapped into, and we need to do a better job of doing that.

Thank you.

Senator SNOWE. Thank you.

STATEMENT OF ANNE HAYDEN, RESOURCE SERVICES, GULF OF MAINE FISHERIES RESEARCH COLLABORATIVE

Ms. HAYDEN. Thank you very much, Senator Snowe and Senator Kerry. I am here on behalf of a newly formed group called the Gulf of Maine Fisheries Research Collaborative, and I just want to support the earlier statements calling for additional cooperative fisheries research. And I will submit my comments for the record.

Thank you.

Senator SNOWE. Thank you very much. We appreciate it.

Senator KERRY. Thanks a lot.

[The prepared statement of Ms. Hayden follows:]

PREPARED STATEMENT OF ANNE HAYDEN, RESOURCE SERVICES, GULF OF MAINE FISHERIES RESEARCH COLLABORATIVE

On March 31, 2000, a committed group of people met in Brunswick, Maine to discuss the need for improving the quality, amount and timeliness of fisheries research information in the Gulf of Maine. This meeting was hosted by the Davis Conservation Foundation and included representatives of educational institutions, fishermen's organizations, fish packers, non-governmental organizations, charitable foundations and state government. The list of people invited to attend this meeting is

attached. The list in Attachment 1 are those who were able to respond in support of this letter in a very limited period of time. We expect the number of supporters to grow as our activities increase.

This new, diverse group has been named the Gulf of Maine Fisheries Research Collaborative. The Collaborative has set an aggressive agenda for future action with the intent of sustaining Maine's commercial fishing industry by developing an effective voice to establish cooperative research priorities and funding to enhance a variety of fisheries resources of commercial importance to Maine.

We are writing today to inform you of our collective views and goals for improving marine fisheries research and management in the Gulf of Maine ecosystem, both in the U.S. and in Canada. As the Oceans and Fisheries Subcommittee continues to consider the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), we ask that this letter become a part of the record of today's public hearing. Not surprisingly, our views and goals closely match last week's report by the General Accounting Office where the need for additional, collaborative scientific research and enhanced economic-impact information were highlighted as significant shortcomings in our fisheries management system.

Adequate and trusted scientific information is one of the most important elements in a successful strategy for sustainably managing United States fisheries resources. The value of the data developed from our nation's fisheries research efforts is significantly enhanced if our research strategies are prioritized and pursued through truly collaborative efforts among interested and responsible parties.

The activities of the Gulf of Maine Fisheries Research Collaborative will build a solid foundation for implementing sustainable fisheries management policies in the Gulf of Maine region. This approach will not only improve the quantity of fisheries research being done but will improve the value of this research by bringing all interested parties to the planning table and into the field.

Unfortunately, it has taken far too long for a truly collaborative fisheries research effort to begin in the Gulf of Maine region, particularly in the United States. Although the MSFCMA requires the Secretary of Commerce to develop a strategic plan for fisheries research, which provides a role for commercial fishermen in the research, this has yet to happen on a broad, ecosystem basis here in New England.

The National Marine Fisheries Services' (NMFS) budget for fisheries research, data collection and other necessary elements of a sustainable fisheries program is seriously under-funded. Progress has been further delayed since the collaborative culture necessary to build a strong constituency for NMFS funding has not been widely embraced by the agency. Also, rather than focusing primarily on fisheries in trouble, research strategies and funding adequate to investigate questions key to the long-term health of all fisheries resources of commercial importance needs to begin to be put into place.

Your recent efforts to support funding for collaborative fisheries research in this region, and those of your colleagues Senator Kerry and Senator Gregg certainly must be commended. Millions of dollars of new funding for cooperative marine research are being earmarked in recent appropriations and authorizations. Since nearly all of the new fisheries research funding coming into the region is only to be used to solve problems in the groundfishing industry, however, it is difficult today to move ahead to develop and pursue other collaborative research efforts in other fisheries important to the Gulf of Maine.

Looking beyond NMFS funding, we also want to bring to your attention the serious need to enhance our marine science infrastructure to provide an adequate number of people to manage the new collaborative research projects that are being developed now and will be in the future.

One significant problem with the short-term nature of the new research dollars coming into the region is that it makes it difficult for some researchers, particularly university researchers, to commit their time to projects developed to use these new funds. These researchers' access to longer-term research funding options, like those available through the National Academy of Sciences for example, may be jeopardized by spending time using shorter-term funding. This is a problem that underscores the need for both NMFS and state fisheries research budgets to be permanently enhanced. It is important that independent researchers, in addition to those employed by federal and state agencies, can participate in new efforts to enhance collaborative fisheries research and be reasonably confident that long term funding will be made available. This approach will truly create the best scientific information available.

This month and next, the Department of Marine Resources (DMR) will be holding a series of meetings, facilitated by the Gulf of Maine Aquarium (GOMA), to identify research priorities in the clam, lobster, scallop, sea urchin and shrimp fisheries. As you know, the DMR and GOMA worked with the herring industry to develop re-

search priorities in the herring fishery three years ago and similar efforts are ongoing in the groundfish industry today. Additional, cooperative fisheries research is essential to our success in sustainably managing the Gulf of Maine's important fisheries resources and in sustaining its fishing communities. A tremendous amount of long-term scientific investigation, concerning a significant number of fisheries, should be pursued but adequate financial resources to do the job are very scarce.

It is our intent and commitment that the formation of the Gulf of Maine Fisheries Research Collaborative will provide Maine with a foundation to better identify and implement fisheries research priorities and identify alternative funding sources in support of collaborative fisheries science throughout the Gulf of Maine. We look forward to working with you to enhance priority marine fisheries research in the Gulf of Maine by using a combination of federal, state, foundation, non-governmental organization and industry dollars. We invite you to attend one of the Collaborative's meetings when your schedule allows you to join us.

Thank you for your attention to and your consideration of our views and for your commitment to a healthy Gulf of Maine ecosystem and a prosperous Maine fishing industry.

Attachment 1

Gulf of Maine Fisheries Research Collaborative

Robin Alden, Stonington Fisheries Alliance
Philip Conkling, Island Institute
Horace A. Hildreth, Jr., Davis Conservation Foundation
Will Hopkins, Cobscook Bay Resource Center
Jeff Kaelin, Maine Sardine Council
George Lapointe, Maine Department of Marine Resources
Linda Mercer, Maine Department of Marine Resources
Craig Pendleton, Northwest Atlantic Marine Alliance, Inc.
Donald Perkins, Gulf of Maine Aquarium
Louis Sage, Bigelow Laboratory for Ocean Sciences
Alden H. Sawyer, Jr., Davis Conservation Foundation
Pat White, Maine Lobstermen's Association
Jim Wilson, University of Maine
Anne Hayden, Resource Services Facilitator

Attachment 2

Gulf of Maine Fisheries Research Collaborative Meeting Invitees

Brunswick, Maine, March 31, 2000

Facilitator: Ms. Anne Hayden, Resource Services
Mr. Donald Perkins, Gulf of Maine Aquarium
Mr. Philip Conkling, Island Institute
Mr. Louis (Sandy) Sage, Bigelow Laboratory for Ocean Sciences
Ms. Barbara Stevenson, Portland Fish Pier
Mr. Craig Pendleton, Northwest Atlantic Marine Alliance
Mr. Jeff Kaelin, Maine Sardine Council
Mr. Pat White, Maine Lobstermen's Association
Commissioner George Lapointe, Dept. of Marine Resources
Mr. Jim Wilson, University of Maine
Mr. Horace A. Hildreth, Jr., Davis Conservation Foundation
Mr. Thomas S. Deans, New Hampshire Charitable Foundation
Mr. Alden H. (Tom) Sawyer, Jr., Davis Conservation Foundation
Linda Mercer, Director, Bureau of Research, Maine Department of Marine Resources
Will Hopkins, Cobscook Bay Resource Center
Robin Alden
Ted Ames
Staff: Nancy M. Winslow, Executive Director, Davis Conservation Foundation

STATEMENT OF HARRIET DIDREKSEN, PRESIDENT, SUB-S CORPORATION

Ms. DIDREKSEN. Harriet Didreksen, boat owner from the port of New Bedford since 1968. I want to thank you, Madam Chairwoman, for asking for the GAO report. I've read it. I think it says a lot. I wish it was a little firmer. But as we see in 1996 the people were included. The other cuts have been put through, but the people have not been looked at. I think that speaks for itself.

I'm against ITQs. It does not limit the fishing. It just limits the resource in the hands of a few people. And at the New England Council we have a chairman right now who has worked for a small group of boat owners who are vertically integrated who want ITQs. So I understand today when people speak and they do not have confidence in the system. Individual one vote/one permit owners are not able to get their point across. I hope you'll look more into this.

Thank you for coming.

[The prepared statement of Ms. Didreksen follows:]

PREPARED STATEMENT OF HARRIET DIDREKSEN, PRESIDENT, SUB-S CORPORATION

Written submission of Harriet Didriksen. President of a small family held Sub-S Corporation which has owned fishing vessels since 1968 pre Magnuson and presently one vessel F/V Settler which holds a full time scallop permit. I am a Massachusetts resident living in the Town of Mattapoisett. The vessel is moored and sailing from the Port of New Bedford. I am Vice-President of a ship chandlery New Bedford Ship Supply where I worked since the age of eleven, serving the fishing industry for over sixty years owned by my 87 year old aunt Sarah Tonnessen.

I am not a good writer I will address each issue point by point as straight forward as I can.

The first and foremost issue I wish to address with the preauthorization of the Magnuson-Stevens Act is maintaining the moratorium on ITQs. If it has not been made clear, I wish to be clear once more for the record.

I do not believe that the New England Fisheries Management Council has the integrity nor the required knowledge of fishing and fishing communities, particularly in the scallop fishery, its people and its economics. Making decisions that would change the face of our coastal communities and the future generations of fishermen.

In March of 1994 National Marine Fisheries implemented Amendment Four to the scallop fishery. It limited entry into the scallop fishery permitting vessels based on historic participation. This action resulted in three types of limited access scallop permits: full-time, part-time and occasional. It was believed by the majority of permit holders that Amendment Four would manage the fishery for a planned seven years. The plan stated that by December of 1994 all permits had to be attached to vessels. In the fall of 1994 the Council started the framework process to create history and latent permits. As we know the Framework process by design grossly limits the scope of public exposure and process. This Framework created a larger permit base that would eventually inflate the fishery designed and presentation in Amendment Four. This action went against the language in Amendment Four which most permit holders were dependent upon and trusted.

The Regional Director at that time Mr. Allen Pedersen during the Council deliberation of the Frameworks stated that if this Framework passed it would change the way he had been handling the appeals process which was ongoing at that time, by stating "if an individual had a legitimate reason for not being able to meet the December 1994 deadline which called for all permits to be attached to vessels he was accommodating them. If he saw permit holders attempting to speculate in the fishery, he would refuse them." Nonetheless, the Council passed the Framework and Gene Martin legal council to New England Fisheries Management Council condoned this action to be done by Framework. This was in direct conflict with the wording in Amendment Four and inflated the fishery. At this time many older fishing vessels were in ill repair, many having financial problems resulting from ten years of scallop count regulations which mismanaged the fishery by eliminating large count scallops. Prior fines for scallop count violations were out of proportion with earnable revenues resulting in further financial hardship for a number of vessels.

From that point on a small group of no more than ten vertically integrated permit holders (boat owners, fish dealers, processors, purveyors of gear) with the where with all, began to purchase derelict vessels at auction or direct from owners for their permit value at bargain prices and then destroyed the vessels. Banks were fearful of the stability of the fishery as they had known it for generation due to a slow fishing economy, uncertainty in regulations and press reporting, they began to call in loans and several seaworthy vessels were forced into marshall sale purchased for a lower base principle investment, deflating the value of the entire scallop fleet.

At the Council level, some of these same integrated individuals acted as scallop advisors, most of them not actively fishermen. Tom Hill now a Council member, a member of the scallop committee and at some years Chairman of the Scallop Committee was hired by "The Scallop Group" (those same vertically integrated individuals now formally organized with Tom Hill as executive director) with the luxury of time to attend Councils meetings and Subcommittee meetings begin to lobby for the consolidation of permits (essentially ITQs). Consolidation went out to public hearing twice, first for the sale of permits and the second time for the leasing of permits. The majority of the permit holders testified against selling and leasing of permits. Nonetheless the NEFMC on the advise of the Scallop Committee presented a motion to the Council process to allow Framework leasing. Attorney Gene Martine legal advisor to the NEFMC accepted this language and allowed this process to proceed forward. If it had not been for Barbara Stevenson of the Council who understood the implications of this action to a play to avoid public input presented a second motion which required that even though it was a framework it must go out for a series of public hearings, the scallop industry in New England would have ITQs today disguised as consolidation of days. From 1994 to present "The Scallop Group" members still retain a strong presence and continue to lobby for consolidation in an effort to own the majority of the East Coast Scallop resource which in time would force out the remaining one boat one permit holders. There is no security place for the one boat one permit owner in a consolidation or ITQ plan. He will sooner than later be forced out of the fishery. Many examples exist of the ITQ system results. Dr. DePaul of VIMS a member of the Scallop Committee presented a minority opinion covering this issue. Today the same Tom Hill referred to above is in the powerful position as Chairman of the NEFMC. Considering the above history and the events that have taken place, I do not feel the Council process is interpreting the Magnuson Act as intended by the Senate and the Congress. Council should not be permitted to privatize the resource and allow a few individuals to accumulate exclusive rights to the resource at the expense and sacrifice of other permit holders and fishing communities as a whole.

The best example of the devastation of fishing communities and loss of employment is our own Northern Clam fishery managed by ITQs and noted in many press releases. Senator Kerry stated when there is a finite resource and infinite permits ITQs might be the only solution. In the scallop fishery on the East Coast, there is a finite number of permits and an infinite resource. Today areas which have been constantly fished since 1994 due to the four closed areas off New England and Virginia are yielding remarkable amounts of scallops. This abundance of resource in the open area cannot be credited to management. Mother Nature must be acknowledged as Dr. Rothschild alluded to in his testimony at Northeastern University.

ITQs are an international issue, see attached (Iceland).* Iceland after having ITQs for 16 years has now been challenged by fishers who have won their first legal battle and its constitutionality is being challenged in the Icelandic Supreme Court.

Dr. Rasmussen from Iceland at the ITQ meeting in New Orleans, which I attended as an industry panel member, stated that many of the pro premises such as issues of safety and the resource, that ownership makes more responsible fishers, has not necessarily proven true in Iceland. It is a false Utopia.

Another example of the devastation of ITQs is in New Zealand where some coastal communities have unemployment up to 60 percent. The few large fishing companies that were created by ITQs now hire their crews from overseas cheap labor. These companies control the science since the TAC has not changed for several years. This is not a conservation tactic, it is simply taking a public resource and putting in the hands of a minority making a few wealthy individuals who now control the market at the expense of the majority.

I believe it is the responsibility of the Senators and Congressmen to insure that the resource provides for as many American Fishermen, their families and related industries as possible.

It has become apparent that fishermen are not respected at most government agencies, especially the regulators and enforcers. Please read attached article writ-

*The information referred to has been retained in the Subcommittee files.

ten by U.S. Coast Guard Captain Raymond Brown* comparing fishermen with drug smugglers. To have the audacity to put this in black and white he must have an audience who would accept its premise. To call New Bedford Scallopers liars is not only a leap of faith but also defamation of character. Please see attached article from the Cape Cod Times.**

When a group of people are not respected as any other citizen of the United States violations of civil rights occur. The rationale is: it is OK if fishermen are treated unfairly because they are like drug smugglers (criminals). The lack of respect has led to unrealistic regulations meant to put your constituents and their families on the street. This can happen and has happened both directly and indirectly. The New Bedford Ship Supply has written off over a half million dollars of debt to relieve financial hardship on fishing families. Their homes are always connected directly or indirectly to the debt. I am willing to document the numbers keeping the individuals names confidential.

NOAA and NMFS under the same umbrella creates a situation where the same agency regulates, controls science that the regulations are based on, enforces, prosecutes and judges cases. This in the old country is called tyranny. There are no checks and balances here required by the democratic ethic.

Science the lack of: Dr. Rothchild of CMAST in his testimony on April 10th, stated that the over fishing definition was soft and the methods that NMFS is using as the basis for regulations were of suspect. This same line of thought was presented by the Academy of Science when he evaluated NMFS and made his presentation over a year ago, "no model is a good model." How then can the Secretary of Commerce dismiss the fishing community's concern with good conscience. I would ask that the Senate review this issue with renewed energy and dissect information that is presented by the NMFS and NEFMC recommendations and absolute answers to complex issues.

I would like to address Mr. Daley's comments rebutting some aspects of the GAO report recently released. Mr. Daley refers to the behavior of fishermen challenging the science when their income is jeopardized. I find this perfectly logical since it is not Mr. Daley's income being jeopardized: it is not his mortgage on his house or his children's future.

Although Mr. Daley would like to separate the science from the socio-economic consequences, he seems to forget he is dealing with human beings. THIS IS MY COMMUNITY THAT HE SO LIGHTLY IS WILLING TO DISMISS.

I would like the lack of socio-economic science to be retroactively investigated. The FMPs that have been passed since 1996, were required to have this information included. NMFS and the NEFMC chose to ignore this portion of the ACT, they have cherry picked the parts of the ACT that they want to enforce. They chose not to hire the social scientist needed to fulfill the requirements. This in no way implies that they need more money to mismanage in the same redundant fashion that has been the trademark of NMFS. People should at least be equal to the level of fish in consideration of regulations. I do not understand how plans have been passed from 1996 forward without fulfilling the social science requirements. This must be ended. "Best science available" is an unacceptable excuse when no effort was made to hire the same number of social scientist as biology scientist.

I wish to express my thanks to you and the Senate Committee's initiation requesting the GAO report. It has long been needed. Fishing Communities have been and are living in fear of their future. Families are at risk. Children in particular are very vulnerable when the type of economic stress that fishing people have been trying to cope with for a long period of time. I see the GAO report as hope, but there is more to be done. As I stated before I wish the GAO had used stronger language, but as I reread it as I have several times, it has cast a black cloud on the entire management process. I want to thank you for acknowledging the problems facing fishing today and your continuing efforts to rectify them.

Senator SNOWE. Thank you.

STATEMENT OF ELLEN SKAAR, FISHERMEN'S AD HOC COMMITTEE

Ms. SKAAR. My name is Ellen Skaar, and I'm a fisherman's wife and I come from generations of fishermen. I want to also speak against lifting the moratorium of the ITQs. Of course, there is no

*The information referred to was not provided.
**The information referred to has been retained in the Subcommittee files.

fishing person that really truly is a fishing person that wants that. We formed a group that is called the Fishermen's Ad Hoc Committee and I tried to put consolidation into the scallop fisheries, and we hired a lawyer and he sent letters to all of the scallop holders, the license holders, and 98 percent said they did not want consolidation. So the feelings of the fishing people is they don't want this.

Thank you.

Senator SNOWE. Thank you.

STATEMENT OF MR. DAUPHINEE

Mr. DAUPHINEE. Thank you both for being here, and I appreciate being able to speak. Just one—I'm backing Mass Fishery Partnership letter. And Senator Kerry, I have—for our state, I have a suggestion that we take the—fill the bed at Moon Island and make it into a place where we could possibly raise halibut, which we don't even have to fish as an idea of how we can be proactive in rebuilding some of the stocks.

Thank you.

Senator SNOWE. Thank you.

STATEMENT OF FRED MATTERA, COMMERCIAL FISHERMAN

Mr. MATTERA. Yes. Fred Mattera. I'm a commercial fisherman for 28 years. I own a freezer troller out of Point Judith.

I've been a staunch opponent to limited entry and ITQs for years. But most recently I have done a one-eighty, and I do support lifting the moratorium on ITQs. Just so that we can explore alternative option. I'm tired, and along with a lot of other fishermen, of being micro-managed.

I think if we're going to look at that, I think we need to look at two concepts that should dovetail along with that. One is a substantial vessel buyout and tax incentives. There are so many people that would step out of this fishery if there were, you know, abilities to roll over CCFs into IRAs or, you know, eliminating capital gains.

The unsafe issues. We just had a vessel—you know, people have been talking about the unsafety. We're in a derby fishery with these 88 days or anything else. There was a vessel out there yesterday who lost a man overboard; another man had to be air lifted. Why? He's fishing in this hellacious weather because he's in days at sea and he doesn't want to lose a day.

Thank you.

Senator SNOWE. Thank you.

STATEMENT OF MR. SCOLA, FISHERMAN

Mr. SCOLA. I appreciate the opportunity to come up to speak before you here today. I was hoping to have a little more time, but . . .

As Senator Kerry asked about the inequities within the Council, do we sometimes feel represented? You know, it was discouraging to see the first panel get two hours and I get 30 seconds, but I'll do my best to relay my thoughts.

I appreciate your sincere attention. I know you're very pressed. My statement today was originally going to focus on safety and some of the issues, and we'll go right over that.

I was the gentleman that Joe was talking about. I was fishing on weather last year that I shouldn't have been fished because we were going to be closed down for three months. Ended up ripping the winch off my deck, cracking a couple of ribs, and if the winch had fallen on me as it came off, I would not be standing here to you and I would orphan my three children, which is really not my goal in life.

There are a lot of things to speak about. Unfortunately, we can't. I'll just touch on them. ITQs you asked about. You seem to be interested in. I think some of the sincere fears that they will not adequately be set forth. In other words, I have been shut down for three months last year; this year five months. By the time they come around with ITQs they're going to go back and say, What did you catch? Well, we didn't catch anything. We can fish. Then you don't get anything. These are some of the fears.

The other thing is that there are a lot of other management tools that are available that would allow fishermen to fish that are not even being addressed or looked at. It's just these vast, sweeping closures that push fishermen like myself into areas that they shouldn't be in. We should not be out there. We don't belong there. We have small vessels. This safety issue has to be addressed, and it's not.

I also wanted to talk about possible aid in the future because if you want these fleets to ultimately survive, you have to come up with some type of program that allows them to be in existence. Everybody comes down to the docks and takes pictures of these fishing boats, and once they get their pictures, they're gone until they want pictures again. Well, pretty soon that's all we're going to have left are those pictures.

Unfortunately, I wish I could say more.

Senator KERRY. Let me just say to you, don't feel as if your other views—I mean you have your statement in writing, correct?

Mr. SCOLA. Yeah. I have a lot more that——

Senator KERRY. I promise you we will digest it. There's no thought here that your ideas aren't going to be heard or read—and we're going to be working very hard with our staff to look at your suggestions. We'll be getting back to you during the course of the next weeks. So this is not a vacuum.

Mr. SCOLA. Well, I was encouraged with the interaction. Normally, we go to the Council, we tell them what we're thinking, they all sit there and nobody says a word. At least you guys ask questions. That's encouraging. Thank you very much.

Senator SNOWE. All of these statements will be reviewed.

STATEMENT OF JAMES BRYAN McCAFFREY, DIRECTOR, MASSACHUSETTS SIERRA CLUB

Mr. MCCAFFREY. Madam Chairwoman and Senator Kerry, Senator Snowe, thank you very much for your leadership and interest in this. The Sierra Club, we have detailed comments here that I'll submit in writing so we don't need to take any time. But these are submitted on behalf of the Massachusetts Chapter of the Sierra Club of which I'm the Director. We have 25,000 members in Massachusetts, and we want to work with all the constituents and communities on this in solving it.

Senator KERRY. Thank you very much.
Senator SNOWE. Thank you very much.
[The prepared statement of Mr. McCaffrey follows:]

PREPARED STATEMENT OF JAMES BRYAN MCCAFFREY, DIRECTOR, MASSACHUSETTS SIERRA CLUB

My name is James Bryan McCaffrey and I am the Director of the Massachusetts Sierra Club, representing more than 25,000 members in Massachusetts. On behalf of the Massachusetts Chapter Executive Committee, and our Sustainable Fisheries Subcommittee, we would like to thank you for the opportunity to provide comment on the reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act.

The collapse of the groundfish and scallop stocks in New England as consequence of overfishing by the commercial industry has wreaked havoc on the biological diversity in our coastal oceans; created economic hardships for fishers and their associated communities; and caused public distrust in the ability of our governmental stewards (National Marine Fisheries Service—NMFS and New England Fishery Management Council—NEFMC) to carry out their responsibilities to protect our public trust biological resources in the ocean. It is not the intent of the Massachusetts Chapter-Sierra Club to rehash who is responsible for getting us in our current predicament, but to encourage all parties (commercial and recreational fishers, consumers, environmental groups, governmental regulators, and the general public) to move forward toward a policy to recover depleted fisheries stocks and develop a sustainable fishery management policy for the future in order to prevent a repeat of recent history. Moreover, despite the success of many components of the fisheries management plans which have led to preliminary signs of recovery of some species, the challenge to adopt viable long term sustainable fisheries policies remains.

The situation in which we have too many vessels chasing too few fish (overcapitalized industry) remains, despite recent NMFS efforts to buy back vessels and NEFMC endeavors to reduce fishing mortality under amendment 7 to the New England multispecies groundfish fishery management plan. Still, we need to move towards addressing issues of controlling open access, developing management measures to limit fishing effort, and to address allocation of living marine resources (LMRs) between the commercial and recreational fishing interests.

We need a new conceptual perspective to move towards a sustainable fisheries policy (Charles, 1994; Christie, 1993). Dr. Carl Safina, Director of National Audubon Society's Living Oceans Program (and former member of the Mid-Atlantic Fishery Management Council—MAFMC), has pointed out that we need to stop viewing marine fish as commodities to be harvested, but recognize that fish are wildlife that are an important component of a healthy ocean ecosystem. Current commercial fishing practices (gill nets and draggers) currently change the biological composition of the ocean ecosystem both directly (excess fishing mortality on target species and bycatch of nontarget finfish, marine mammals, marine birds, sea turtles, etc.) and indirectly (damage to epibenthic invertebrates on the bottom as a consequence of otter trawls and ghost fishing in abandoned gill nets). As a consequence the demersal fish community on Georges Bank has changed from one dominated by cod and haddock to one dominated by dogfish and skates, with an accompanying explosion in the populations of pelagic species such as Atlantic mackerel and sea herring which has shifted the feeding grounds of large whale species, pelagic seabirds, and pinnipeds (Hofman, 1995; Kenney et al., 1996). These unprecedented changes in the composition at the top of the food chain are likely to impact the biodiversity in other components of coastal ocean ecosystem (Olver et al., 1995). Also the indirect impacts of fishing gear on the bottom organisms and ghost gill nets impoverish oceanic biodiversity (Auster et al., 1996; Dayton et al., 1995; Hofman, 1990).

In order to move towards a sustainable fisheries management strategy we need to adopt a precautionary approach in which management errs on the side of conservation in the face of uncertainty (Hewison, 1996). The current scientific advice provided by the NMFS is accompanied by a variety of sources of uncertainty in the assessment advice, stemming from incomplete knowledge of stock size and natural mortality rate; incorrect assumptions in the underlying mathematical models; and projection techniques of limited efficacy in the face of habitat degradation, climate change, and the inability to predict the socioeconomic behavior of the harvesters (Rosenberg and Restrepo, 1994; Sharp, 1995). In the past this uncertainty has caused the NEFMC to allow excess harvesting rates by the commercial industry. In the future we need to adopt a precautionary approach in which we allocate harvest levels well below optimal sustainable yield (OSY), with the onus being placed upon

the commercial fishers to justify harvest levels above this reduced amount. Reauthorization of the Magnuson-Stevens Sustainable Fisheries Act offers further opportunities that each Fishery Management Plan (FMP) will have its essential fish habitat described (including an assessment of the impacts of fishing gear and habitat degradation from pollution or loss of inshore nursery areas, such as wetlands and seagrass beds); support conservation engineering programs to reduce bycatch; and promulgate measures to reduce overfishing. Long term ecological health of the coastal ocean and sustainability of the biodiversity needs to dominate short term economic considerations. We need a greater focus on managing the behavior of fishers, as opposed to the current emphasis on managing fish populations from a strictly biological perspective.

The regulatory groups (NMFS–NER and NEFMC) need to take action and make provisions as follows:

- Provide membership in the NEFMC to non-commercial fishing representatives (recreational fishers, environmental groups, and consumer groups). Need a greater sensitivity to conflict of interest issues from commercial interests on the council (fox guarding the chicken coop analogy which diminishes public trust).
- Establish marine reserves to serve as a recruitment areas for fish, protection of fish breeding and nursery areas, and to provide a baseline for evaluating the impact of otter trawl/scallop dredge fishing gear on the bottom invertebrate communities (could make the amendment 7 closed areas I, II, and Nantucket Lightship permanent and seasonally close Massachusetts Bay/Great South Channel area). This would also protect migrating Northern right whales, humpback whales, and harbor porpoises (see Roberts, 1997; Auster and Malatesta, 1995).
- Set aside a component of the TAC for less environmentally-damaging fishing techniques. Hook and line fisheries are more selective, produce a higher quality product for the consumer, and don't damage the habitat as much. The trip limits for hook and line fishers should be high enough to support two persons per boat in order to promote safety. The TAC and days at sea/trip limit regulations should be adjusted in order spread out fishing effort seasonally. This would prevent the race for fish by large offshore trawlers which reduces the value of landed product for all participants.
- Develop better coordination of fisheries management jurisdictional issues between the state waters (0–3 mile), federal waters (3–200 mile Exclusive Economic Zone), and international Hague Line (U.S./Canadian conflicts). Since the fish and marine mammal stocks move without regard to artificial political boundaries, we need better coordination between the coastal states, Atlantic States Marine Fisheries Commission (ASMFC), NMFS/NEFMC and Canadian Department of Fisheries & Oceans (DFO).
- Develop a government-funded conservation engineering effort to develop less destructive fishing gear to reduce bycatch and damage to the bottom organisms. This can be conducted by commercial fishers in conjunction with Sea Grant programs and funded by Saltonstall-Kennedy and Fishing Industry Grant funds supplied by NMFS.
- Establish programs to mitigate habitat degradation from land-based nonpoint sources of pollution and elimination of nearshore nursery areas/breeding grounds (coastal wetlands and seagrass beds; gravel habitats in rivers). This needs to be based upon an assessment of areas already degraded (for which we lack an easily accessible database); success/failure of past mitigation efforts (for which we lack adequate follow up monitoring due to understaffed NMFS habitat programs); and lack of research on the dynamic habitat requirements of fish at different life stages (resulting from lack of NMFS resources devoted to this effort). As our depleted stocks recover from overfishing, mitigation of degraded habitat will become a more critical bottleneck in developing a sustainable fishery policy (Dayton et al., 1995; Langton et al., 1995).
- Devote greater attention to the threats to wildlife posed by biotoxins, bacteria, and viruses. Even though it is recognized that biological hazards pose a human health threat from the consumption of contaminated shellfish (Ahmed, 1991; Grimes, 1991), not enough attention has been focused on the threat posed to wildlife from these human-based sources of pollution (Geraci et al., 1989; White et al., 1989). Of special relevance is the threat posed by the ocean disposal of dredge spoils (Massachusetts Bay Dredge Spoil Disposal site) and municipal wastewater (Massachusetts Water Resources Authority outfall). Comments on

NPDES permits for pollution from point sources discharged into the coastal ocean should address issues of changes in the biological integrity of the receiving system, as well as the toxic effects emanating from the chemicals discharged.

- Improve ability of stock assessments to incorporate information on habitat, bycatch mortality, climate change, and socioeconomic behavior of the commercial/recreational fishing community (Sharp, 1995). Since uncertainty will still exist even with such improvements, a precautionary approach should be adopted, the primary purpose of which would be to protect the biodiversity and integrity of the coastal ocean ecosystem which is the ultimate guarantor for a sustainable fishery (Charles, 1994; Christie, 1993; Dayton et al., 1995; Olver et al., 1995).
- Improve coordination with the scientific community to utilize area closures and restrictions on fishing effort as large-scale experiments to determine the efficacy of management actions (adaptive management approach). This would require maintaining closures even after some stocks recover, but this information would help manage fisheries better in the long term.
- Provide more resources to the Coast Guard and NMFS to enforce fishery regulations and collect better information on landings, bycatch, and interactions between fisheries and marine mammal, seabird, sea turtle, and non-target finfish species. These non-target fish are forage for other components of the oceanic foodchain.
- NMFS Fishing Capacity Reduction Initiative (FCRI) has fostered social justice, but is likely to fall short in the areas of resource conservation (limited effort reduction will be reallocated to the fishing effort of the remaining fleet and inactive permit holders) and economic efficiency (effort reduction will be overcome by input stuffing, input substitution and technological improvement) (Gates et al., 1997).
- Need to eliminate governmental subsidies that prop up unsustainable fishing operations, whether these occur as a result of low-cost industry loans, development of fisheries for "underutilized" species, market research and development, etc. Government financial aid should be limited to retiring fishing vessels and gear and retraining displaced fishers.
- Provide a forum outside the FMC format for the variety of constituents interested in harvesting and protecting our public fisheries resources to agree upon the way forward toward a sustainable fishery policy from our present situation (since the problem has political, socioeconomic, and allocation components which can only be solved if all parties work towards a solution without castigating one another).

STATEMENT OF RON PHILLIPS, PRESIDENT, COASTAL ENTERPRISES

Mr. PHILLIPS. Good afternoon. I submitted my comments in writing. Thank you very much for just a moment. My name is Ron Phillips. I'm president of Coastal Enterprises, a community development corporation and community development financial institution in Maine. We do a lot of financing of businesses in Maine, especially natural resources and particularly the fishing industry. We directed $23 million into this industry. I'm here to say that it is a very lively and vibrant industry in Maine. We're doing a lot of deals. We have a lot of demand on capital. And my testimony is about access to capital. And I'd like to encourage you to consider in supporting the reauthorization of this, of the Act, and also be very sensitive to the biology and the participation of fishermen and data collection, which we encourage. I want to encourage and urge you to consider ways to create some capital to recapitalize our funds to keep this industry going, which is so important to the traditions and communities and values of people in New England.

Thank you.

Senator SNOWE. Thank you. First of all, let me just apologize. I'm sorry there isn't enough time. I want to assure you that the Subcommittee will review all of the statements. There are ten legislative days to include additional comments, statements, concerns, and questions for the record. We'll be reviewing all the comments that have been issued here today. Unlike the Senate, I served in the House of Representatives for 16 years and more often than not we only had one minute to speak. And so I sympathize. It's not an easy thing to do. I do appreciate your willingness to be here today, and I realize that it's no small sacrifice. I want to assure you that we understand the value of this industry to you, your families, your state, and your region. As a fellow Mainer, I certainly appreciate that.

I want to express my appreciation to Senator Kerry for his leadership and his contributions. Again, I assure you that we're going to be working together to move forward on this very critical and valuable process. So again, I want to thank you.

Senator KERRY. Thank you very much, Madam Chairwoman, thank you.

Senator SNOWE. The hearing is adjourned.

(Whereupon the hearing was adjourned at 2:45 p.m.)

APPENDIX

FISHERMEN'S AD HOC COMMITTEE,
Dartmouth, MA, April 18, 2000.

Hon. OLYMPIA J. SNOWE,
Chairperson,
Senate Subcommittee on Oceans and Fisheries,
Commerce, Science, and Transportation Committee,
Washington, DC.

Re: Comment letter on ITQ's

Dear Senator Snowe:

The Fishermen's Ad Hoc Committee consists of boatowners and fishermen from the northeast who are engaged in the scallop fishery and have been actively represented in the past before the New England Fishery Management Council (the "NEFMC"). This comment letter is to record the opposition of our Committee to individual transferable quotas ("ITQ's") in the limited entry scallop fishery.

Our group has opposed similar proposals previously put forth by an "interested few" under the names of consolidation and leasing who sought to transfer and stack limited access scallop permits and the "days at sea" (DAS) which are allotted to set a quota or limit on the scallop total catch by limiting the number of fishing days for a scallop vessel each year. Our opposition goes back over four years and is well stated in our comment letter to the NEFMC dated October 31, 1997. A copy of our letter with its attachments is attached hereto and sets out a position that is equally applicable to ITQ's today.

When ITQ's were put on hold until October 1, 2000 the small group mentioned in our letter of 1997 worked vigorously to get around that prohibition claiming it did not apply to "stacking" or "consolidating" licenses or transferring "days at sea" because quotas were limited to weight and volume and did not specifically include time spent fishing in the allotted DAS.

The matter was attempted to be imposed as a regulation which required public hearings and comment. It was overwhelmingly opposed by scallop fishermen up and down the coast from Maine to Florida and its implementation was checked but not defeated. A member of the NEFMC (now its Chairperson) was the paid consultant and spokesman for the small group seeking the change to allow the transfer of permits and/or fishing days. His efforts almost succeeded when the catch-word was changed to leasing to allow the transfer of DAS. The NEFMC, responding to the opposition in the industry, resisted the change in 1998 but succumbed to the pressure of the small group and its spokesman to allow leasing to be implemented through the regulatory framework process which would not require the public hearings and notice of a regulation change for its adoption. Ms. Barbara Stevenson as a Council member from Maine was able to neutralize the framework vote by amending the motion to require that public hearings be required before any framework adjustment can be implemented.

The arguments against ITQ's remain the same as those against "consolidation" and "leasing"! At the present time the class 2 (full-time) limited access scallop fishing permit ("license") is attached to a fishing vessel and goes with the vessel or its replacement vessel. This is so even though the permit purports to go to the owner as an individual or as a corporate entity. We believe that an individual fishing quota makes sense when we have sufficient scientific data to determine a total allowable catch in a particular fishery. However, the fishing permit should not be separated from the fishing vessel and it should not be transferable in whole or in part which would allow another to acquire and be guaranteed a larger share of scallops in a season than its competitor. Fishermen should be allowed to conduct business in the fishery on a fair and level playing field.

To allow ITQ's is to encourage speculation and to threaten the small family-owned fishing boat business and the fishing communities. It will open the door for dominance in the scallop fishery by a prosperous few and will not foster conservation

which is the essence of the Magnuson Act and the Sustainable Fisheries Act. ITQ's will destroy a way of life for the small family owned fishing business as it did in the surf clam fishery and as it has in Alaska. Iceland is presently embroiled in litigation that seeks to eliminate ITQ's.

Our Committee is opposed to ITQ's in the scallop fishery.

Very truly yours,

JOHN A. BIRKNES, JR.,
Fishermen's Ad Hoc Committee.

MASSACHUSETTS AUDUBON SOCIETY,
Wenham, MA, April 10, 2000.

Hon. OLYMPIA J. SNOWE,
Chairperson,
Senate Subcommittee on Oceans and Fisheries,
Commerce, Science, and Transportation Committee,
Washington, DC.

Dear Senator Snowe:

My name is Robert Buchsbaum. I work as the Coastal Ecologist for the Massachusetts Audubon Society and have a Ph.D. in marine ecology. I serve on Essential Fish Habitat Technical Team for the New England Fisheries Management Council. It has been involved in delineating essential fish habitats, habitat areas of particular concern, and identifying conservation issues related to fish habitats. I also serve on the Scientific and Statistical Committee of the Council.

The Massachusetts Audubon Society believes that the Sustainable Fisheries Act is working to improve fish stocks in New England, and we urge Congress not to weaken it. A number of stock, such as yellowtail flounder and haddock are showing signs of recovery, as a result of management actions required under the SFA. The law itself is good and needs to be given more time to fully provide its benefits we envision it will. The fisheries crisis in New England is something that developed over more than ten years of lax management, so it will take some time for many fish stocks to recover to sustainable levels. Where we believe the Act has fallen down is on some aspects of its implementation by the National Marine Fisheries Service and the regional councils.

Our organizations has been most actively involved in the Essential Fish Habitat (EFH) provisions of the AFA. This is an innovative aspect of fisheries management that we strongly support. It moves fisheries management toward an ecosystems approach and away from single species. It is important to maintain and strengthen this approach, which recognizes the connection between habitat and fish productivity and also the need to be conservative. New England Council has done a good job in identifying habitats and problems to those habitats.

Major habitat issues that need to be addressed:

1. More funding is needed for habitat research. Research is needed to:

- identify habitats that are really important to the fish at a finer scale than is presently possible,
- examine how gear, particularly trawls and dredges impact different types of habitats,
- examine the effects of closed areas on a variety of fish. Closed areas work, as evidenced by the increase in sea scallops in Closed Area 2 (Georges Bank).

2. The New England Fisheries Management Council and other regional councils have not acted to address impacts to fisheries habitats, particularly those from fishing activities. We support the suggestions of the Marine Fish Conservation Network who want to change the burden of proof so that gears would have to prove they are not harming habitat rather than the other way around. This would be done for new gear and for all gear in closed areas that are being reopened.

3. We need to support and maintain the consultative process for projects that might impact EFH. NMFS and the regional fisheries management councils provide the only review of projects that focuses on potential impacts on fish habitat. Evidence is that it has not caused any undue extra regulatory burden on project proponents or regulatory agencies such as the Army Corps of Engineers.

We thank you for this opportunity to comment and look forward to continued progress in the conservation and management of New England fisheries.

The Massachusetts Audubon Society is a voluntary association of people whose primary mission includes the preservation of a Massachusetts environment that

supports both wildlife and people. The Society's programs encompass three broad areas: biological conservation, environmental education and advocacy. The Society is one of the largest independent conservation organizations in New England with a membership of 63,000 households.

Sincerely yours,

ROBERT BUCHSBAUM, PH.D.,
Coastal Ecologist.

PREPARED STATEMENT OF JAMES A. DONOFRIO, EXECUTIVE DIRECTOR, RECREATIONAL FISHING ALLIANCE

It is very disappointing to the Recreational Fishing Alliance (RFA) that the issue of eliminating spotter aircraft from the harpoon and general category fisheries has not been addressed by the National Marine Fisheries Service (NMFS) in a timely manner. There has been a recognition by the Highly Migratory Species Advisory Panel and most bluefin tuna fishermen in the harpoon and general categories for some time now, that the use of spotter planes goes against the philosophy that led to the development of the harpoon category and that the general category has operated under until recently. Since NMFS has not fulfilled its management responsibilities on this issue, we are forced to ask for your help.

The harpoon fishery has been a traditional bluefin fishery for about as long as there has been a fishery—it outdates most if not all other gear types. The sentiment for retaining this traditional fishery with emphasis on the one-on-one battle of fisherman and their keen sight against giant bluefin has been strong over the years. When bluefin tuna regulations were first implemented there was recognition of this fishery and when quotas were drastically reduced in the early 1980's, again there was recognition of the need to retain this traditional fishery and provide the opportunity for the fishermen in small boats, pursuing their quarry on the few calm days when the fish could be seen well at the surface, to take more than one fish. This respect for and desire to preserve the traditional fishery existed then and exists now. This can be seen when looking at the results of public hearings on this issue and all the comments received from fishermen.

There were no airplanes guiding the fishermen in the traditional fishery—only their skill at spotting and then moving in on a fish at the surface to where they could throw their harpoon by sight. There was concern, however, as early as 1980 that bigger boats pursuing swordfish with aircraft would get into the bluefin fishery and destroy the traditional aspect of the fishery. This concern was realized about five or six years later and the catch rate was skewed towards those vessels with aircraft prompting an attempt by traditional harpooners in 1988 to get the Government to ban the use of aircraft to assist in the capture of bluefin. The desire of the fishermen in this category has been ignored too long. The message that has been sent to NMFS can not get any stronger than this. Spotter aircraft in the harpoon category destroy the objective of sustaining a traditional harpoon fishery. They must be eliminated.

The same argument can be made for the general category fishery since aircraft were not a traditional part of this fishery. More important in the general category, however, is the fact that spotter aircraft substantially diminish the impact of effort controls that NMFS and fishery participants worked hard to implement in an attempt to maximize the use of available resources and split the catch among as many users as possible. This philosophy to spread out the catch over participants, space and time was recognized in 1980 regulatory documents and has persisted in bluefin regulatory actions since with the exception of the use of spotter aircraft which is counter to that philosophy. In addition to being a guiding philosophy for domestic allocation of bluefin under the Atlantic Tunas Convention Act, the National Standards for the Magnuson-Stevens Act (Section 301) states: "Allocation of fishing privileges shall be (A) fair and equitable to all fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges." The use of spotter aircraft in the harpoon and general categories goes against all of these standards. First, it is not fair and equitable but provides vessels using aircraft a distinct advantage over vessels fishing traditional techniques. Also, it ensures that the opportunity to catch bluefin will not be equitable but skewed towards those vessels with aircraft since their catch rate is greater and the season closes quicker. Second, the use of aircraft certainly is not calculated to promote conservation but to catch as many fish as possible. With this "tool," the temptation to high-grade is greater and more undersize fish are killed and released than under traditional fishing techniques which is certainly not conservation. There are letters from

fishermen documenting this. The third part to the standard is violated for the same reason as the first—the vessels with aircraft catch an excessive share. Again, there is information from fishermen that document the difference in catch between vessels using planes and not using planes.

One of the most important reasons for banning spotter aircraft in the general category is directly related to responsible management and thus conservation of bluefin tuna resources. The criteria listed in 1982, and remaining in effect today, for the preferred management strategy included language from the assessment scientists that "the effort that generates the catch is related to the fishing mortality rate." This requires a measurable unit of effort such as vessel days or hours fished which is proportional to the fishing mortality rate. The traditional general category fishery has measurable units of vessel effort and has been the basis for the very important large fish index which is used in the assessment for the status of Atlantic bluefin tuna stocks. The addition of aircraft to this category, however, throws in a bias that can not be measured. The effort from the vessels using spotter planes is not quantifiable since catching the fish has nothing to do with vessel effort but plane effort which is not quantifiable. Basically, with airplanes, you have a catch-per-unit-of-effort (CPUE) that doesn't relate to changes in abundance. Therefore, the catch and effort data from vessels capturing fish with the aid of aircraft should not be used in developing the large fish index used in the bluefin tuna assessment. Each data point is important and the International Commission for the Conservation of Atlantic Tunas assessment scientists can not afford to loose data key to determining the status of bluefin stocks. Spotter aircraft should be banned from this fishery so there can be use of the CPUE data from all the vessels in the fishery.

Also, there is a safety issue that is particularly important as more and more boats get into the fishery. Even on days when visibility may be poor for the vessels on the water, a plane can be seen in the clear skies above and when this plane circles, it is instinct to rush towards that area. This can be dangerous when a number of boats, many that can go very fast, rush to the same area.

I hope that you can see that there has been much thought put into this issue by the fishermen involved in these fisheries and that they have developed a record of opposing spotter planes in the harpoon and general categories. This information and comments/requests have been presented to NMFS and we have been waiting for a regulation to implement a ban on spotter planes in these categories. Despite the efforts of many organizations and individuals, we are frustrated by the delay and, thus, are seeking your help in getting this ban implemented.

PREPARED STATEMENT OF RONALD ENOKSEN, EASTERN FISHERIES, INC., NEW BEDFORD, MA

I am the third generation in the sea scallop harvesting business. I represent twelve vessels in New Bedford, MA, all of which fish for sea scallops. These vessels fish off New England and Middle Atlantic waters.

I have seen many changes in this business. I can remember being on my father's boat back in 1976 fishing for scallops with no meat count before the 200-mile limit. We would be catching scallops off the coast of New Jersey along side with the Canadian scallopers. The implementation of the 200-mile limit and the Magnuson Act has generated many good changes particularly protecting our resource from the foreign fishing vessels. It also created new work for the shipyards for construction of new vessels. Unfortunately, it also created excess fishing capacity since the new vessels were not replacing other existing boats. This increase in the fishing capacity put tremendous pressure on our resource, which in turn created an uphill battle for all regional councils to protect the diminishing resources.

The council would address the excess fishing capacity problems by having minimum fish size and a moratorium on permits issued. The council would also close off areas to fishing and force vessels to spend more time at the dock than out fishing. Next, the council would require a fishing gear change that reduces the efficiency of the vessel to catch the seafood. Later on the council would address all other species caught besides the directed species.

I have followed the rulemaking in the New England Fisheries Management Council process. I have attended many meetings from Planning Develop Team, Advisor, Oversight committee, and the Council levels since the Amendment 4 of the sea scallop. I became directly involved in the council process when I volunteered to be sea scallop and monkfish advisor in 1998. I have seen how our council rulemaking process works. In my mind all regional councils have an enormous responsibility to address the problems of rebuilding and protecting our resources. Now the U.S. Congress has given Sustainable Fishery Act to the Regional Councils, which requires

the Council to rebuild the biomass within ten years. The biggest threat to our resource is too many boats capable of chasing for the same fish. Right now there are too many vessels with too few days at sea chasing for the same fish that are not in the existing closed areas.

The majority of the fishing vessels are approaching twenty-five years old. Some vessel owners have difficulty in spending monies to take proper care of their vessels. There is no economic incentive to build new or upgrade vessels. Few or no banking institution would finance new vessels or upgrade because too few fishing days are allowed. Currently the crews are jumping from boat to boat to try to maintain a year's pay when the boats are tied up two thirds of the year. This is where I would strongly encourage all Senators to please lift the moratorium on ITQ's, IFQ's, and quota based programs. I believe that by giving the Regional Councils more latitude they address the over fishing capacity. Give the Council more options to develop a sustaining fishery off our coast. I know that ITQ's, IFQ's, and quota based programs are not perfect but at least allow each Regional Council to explore the concepts. The Councils could learn from the downfalls and problems of other existing quota-based programs.

Hopefully, Congress will consider lifting the moratorium which will in turn give each Regional Council more latitude in the decision-making process to address the issue of over fishing capacity. Thank you for this opportunity to speak.

PREPARED STATEMENT OF RONALD L. PHILLIPS, PRESIDENT,
COASTAL ENTERPRISES INC.

Senator Snowe and members of the Subcommittee,

I am pleased to present testimony in support of reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act hearing. My comments relate to the need to continue investing in the New England fishery to preserve the infrastructure and support a way of life, values and traditions so important to many coastal communities and families.

Coastal Enterprises, Inc. (CEI) is a nonprofit community development corporation and community development financial institution based in Wiscasset, Maine. We finance small businesses, community facilities, and affordable housing. Development of value-added natural resource industries has been a major economic sector of CEI's and a vital part of the state's economic development activity in this sector. In the past, and with the infusion of FDA revolving loan funds three years ago, we continue to focus and target scarce financial resources toward Maine's traditional and emerging marine resource based enterprises.

Despite the doom and gloom headlines of the regional papers, this sector represents an important asset and source of income for coastal communities. To capture the valuable web of shoreside linkages, a recent study from the University of Maine calculated that for every $1.00 of seafood landed an additional $2.39 of income is generated. The danger we face in the current climate of stock assessment and rebuilding is that we will underestimate the importance of maintaining and carefully building upon the industry infrastructure. This is not just traditional wharves and piers, but the irreplaceable skills that the shrinking pool of professional Captain and crew contribute.

CEI's portfolio continues to grow and responds to both traditional sector needs as well as new venture opportunities emerging in aquaculture and marine biotech. To date, we have directly invested over $23 million in 116 fisheries-related businesses that support well over 1000 captain, crew, and shoreside jobs from York to Washington County. Worth mentioning is that over the last five years our portfolio performance has improved as our loan volume has increased.

At the same time that we see the real need for community development financing, we also believe that the future of Maine's fishing industry depends upon our ability to better understand the biology of the resources we harvest and to effectively manage them. From a community economic development perspective, the challenge of managing marine resources for the future and maintaining the commercial viability of this critical industry takes place deal by deal in specific coastal ports and towns. Biological data is key to resource understanding and management. Financial capital is critical to investing in the future of Maine's Fishing Industry.

We have submitted a proposal to the National Fish and Wildlife Foundation for our Fishtag financing in which borrowers agree to contribute scarce biological data towards management efforts. Our main goal right now is to raise the loan and investment capital to meet the growing demand. In the last four months alone, for example, we loaned out over $800,000.

There are clearly many elements to the Magnuson-Stevens Act critical for ongoing management of the fishery. The 1996 amendments established guidelines for research to better determine the social, economic and cultural value and impact of the fishery as stocks plunged, and efforts were made to preserve and rebuild. Findings from these studies suggest that reinvestment presents a critical opportunity. Our recommendation is that resources are allocated to new venture opportunities, and that the Subcommittee to consider ways to setaside funds to capitalize revolving loan funds. CEI alone could use additional funds to build on our existing portfolio.

We look forward to working with you on these issues and others that are crucial to Maine's Fishing Industry. Thank you for the opportunity to present this brief testimony.

Attachment

CEI's Fisheries Project

What is the goal:	To foster the sustainable development of Maine's Fisheries and fishing communities by making investments, initiating projects, supporting policies and assisting marine related enterprises that: • generate quality jobs; • add value to marine resources; • strengthen marine infrastructure; • improve management of marine resources; • reuse and or recycle waste streams
What are the terms:	7% fixed rate, 5–10 years
How much have we lent:	$7.9 million and leveraged an additional $15 million
Our Bank Partners:	Androscoggin Bank, Bath Savings Institution, Camden National Bank, Damriscotta Bank and Trust, Farm Credit of Maine, Finance Authority of Maine, First National Bank of Damriscotta, Fleet Bank, Key Bank of Maine, Northeast Bank, Peoples Heritage Bank, Pepperell Trust Co., Union Trust
How many deals:	116 loans
Who do we lend to:	38.9% harvesters, 15.1% processors, 11.9% shoreside suppliers, 11.1% wholesale, 7.9% infrastructure, 11.1% new marine related, 4% retail
Uses:	$10.7 million fixed assets, $11.7 million in working capital
Portfolio Strength:	Loss rate under 1%
Jobs:	953 full time and 172 part time; Avg. job pays $10/hour with some benefits
What is a FISHTAG:	A FISHTAG commits the borrower to collect and contribute scarce biological data toward a management effort. CEI links the borrower, regulatory agencies, with the scientific community to define the data, methodology, and monitoring protocols.

PREPARED STATEMENT OF DAVID K. ROACH, EXECUTIVE DIRECTOR, FLORIDA INLAND NAVIGATION DISTRICT, JUPITER, FL

Good morning Members of the Subcommittee, my name is David K. Roach. I am the Executive Director of the Florida Inland Navigation District, an independent unit of Florida State Government that serves as the "local sponsor" of the Atlantic Intracoastal Waterway project in Florida. The District's Board of Commissioners has directed me to provide this testimony on behalf of the commercial and recreational users of the waterway which come from all states of our nation. My testimony today will provide some background on the waterway and the effect that Essential Fish Habitat is having on our ability to maintain the waterway.

Background on the Atlantic Intracoastal Waterway

The Atlantic Intracoastal Waterway is an integral part of our nation's navigation system. Originally developed in 1881 by private interests in conjunction with the State of Florida, the waterway today is a federal/state project serving many national, regional and local interests. On an annual basis the waterway carries close to 1 million tons of commercial cargo, transports over 500,000 cruise passengers, provides connecting access to 18 inlets and ports along Florida east coast, supports 33,000 commercial waterway related jobs, supports a $10 billion per year recreational marine industry, provides access for over 500,000 recreational vessels, and supports $320 billion of land side real estate values.

The waterway also serves as part of the nation's national defense system, provides access and recreational opportunities to the six million residents of Florida's east coast, provides a destination to the millions of tourists from other states or other countries that come to Florida each year to enjoy our waterway and beaches, and provides environmental benefits to our natural lagoons and waterways. Yes, the waterway channel does provide environmental benefits by facilitating the mixing of ocean and lagoon waters to create excellent water clarity to support marine habitats that make our lagoons and bays some of the most productive and diverse in the world. Additionally, the waterway provides a corridor for the migration of any species such as the endangered manatees. Indeed, the waterway is essential to the quality of our lives along the eastern seaboard.

Waterway Maintenance Status

Since 1985, the District has been working on a Long Range Dredged Material Management Plan for the waterway that, when implemented, will provide a permanent infrastructure of sites to properly store, manage, and recycle 50 million cubic yards of dredged material over the next 50 years. The primary goal of the plan is to allow the waterway to be maintained in perpetuity without further impacts to our wetland resources. The implementation of the plan will preserve over 25,000 acres of wetlands and submerged land resources. Our plan is the most forward thinking dredged material management plan in the nation.

The District has currently invested over $5 million in producing the plan, $50 million in land acquisition costs, and $10 million in development of the infrastructure. Our dredged material plan is currently the most implemented plan in the nation. Future investment costs will be an additional $10 million for land acquisition, $50 million for infrastructure development, and approximately $300 million for maintenance dredging over the next 50 years. While dredging and infrastructure costs are the responsibility of the federal government sponsor, the District has stepped forward to commit at least $80 million of these costs for better maintenance of the waterway in Florida. Pursuant to our agreement with Congress we will not seek reimbursement of these expenses. As you can see the District has made a substantial commitment to the maintenance of this waterway that will protect the environment and provide safe and efficient navigation.

Effects of Essential Fish Habitat on Waterway Maintenance

While the spatial area of waterway channel is a very small portion of the acreage of the natural and man made waterways that the channel passes through, the Atlantic Intracoastal Waterway in Florida is entirely within the designated boundary of Essential Fish Habitat for several species including red drum, penaeid shrimp, gray and lane snapper, gag grouper, and spanish mackerel. This designation of essential fish habitat in the waterway channel was done without any specific investigations being performed in the channel itself

A recent request to perform routine maintenance dredging of a section of the waterway channel, that has been maintenance dredged every four years since 1965, resulted in an adverse impact letter to Essential Fish Habitat from the National Marine Fisheries Service. In their letter, the Service requested that we avoid or mitigate for the impact to the sparse seagrass bed that had moved into the channel since the 1995 dredging event. We could not avoid the potential impact because of the linear nature of the channel and more significant resources located outside of the channel.

We had never heard of a request to mitigate for a maintenance project so we contacted the Service to determine the rationale and authority for this mitigation requirement. Conversations with Service personnel indicated that "This is a new day." They also indicated that the Magnuson-Stevens Act and the Habitat Protection Plans developed by the South Atlantic Fisheries Management Council did not exclude the channel and required mitigation for all seagrass impacts. They further indicated that the Act and the Plan did not provide them with any flexibility in their decision-making. Finally, they stated that if seagrasses were to recolonize in the

channel after we had dredged and mitigated this year, "We would probably have to mitigate the next time we dredged" as well. This seemed to be an unreasonable approach to environmental protection in relation to the routine maintenance of an authorized public project.

With the necessity to begin the project because of environmental timelines on the use of the beach placement area, we had to eliminate this portion of the channel from our permitting request. We expect that, until this issue is resolved, this shoal will continue to grow. As it grows toward the water surface it will be routinely impacted by more and more vessels attempting to legally use the waterway channel until eventually the seagrass will be removed by this vessel impact. Therefore, it does not seem that the Service's goal of protecting this seagrass bed will be realized.

Comments on Essential Fish Habitat

The District is of the opinion from our experience that the definition of Essential Fish Habitat is too broad. While the waterway channel may serve as fish habitat it certainly is not "essential" fish habitat because of the extreme amount of vessel use and ongoing maintenance dredging that occurs within the channel limits. These activities do not support or encourage within the channel a "substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" as defined in the Act. It is not reasonable to conclude that the waterway channel itself is "necessary" or "essential" for the fishery. Maintenance dredging of the waterway using today's technology, a proper dredged material management site, and limited by environmental permit conditions will not negatively or perpetually alter the "physical, chemical, and biological properties" of the channel in relation to its use by fish.

There have been no specific studies by the Service throughout the 374 mile length of the waterway channel to document resources in the channel that would meet the definition of essential fish habitat. It now seems that the Service wants navigation interests to prove that the channel is not essential fish habitat. A recent resource survey of a small section of the waterway channel for a channel expansion project cost the Corps of Engineers $220,000. The cost of this type of survey for the 374 miles of waterway channel in Florida would be over $3 million.

It is our belief that Congress did not intend for essential fish habitat protection to preclude or increase the complexity or cost of routine maintenance dredging of the nation's public navigation system. The District is of the opinion that the Act sought to protect areas outside of maintained channels and harbors that provide the "essential" habitat for the fisheries. The District supports this concept. It is not logical that altered and maintained channels and harbors would constitute "essential" fish habitat. A change to the definition of essential fish habitat in the Magnuson-Stevens Act to exclude public channels and harbors from this provision would rectify this unintended consequence.

Conclusion

The Atlantic Intracoastal Waterway is an integral part of our nation's navigation system. The application of Essential Fish Habitat provisions to the waterway channel is an unintended circumstance that threatens the efficient maintenance and safe use of the waterway. The District requests that the Subcommittee modify the definition of essential fish habitat to exclude the nation's waterway channels and harbors from this designation. Thank you for this opportunity to address the Subcommittee and provide this testimony.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN KERRY TO DR. BRIAN ROTHSCHILD

Multispecies and Ecosystem Management

There is certainly a need to begin instituting multispecies management measures in New England so we can ensure that fishermen have the flexibility to switch among species. However, it is unclear how you would accomplish this under current guidelines and legislative requirements.

Question 1. What measures are available to the Council as they prepare Amendment 13?

Answer. It is possible to develop an index nominal fishing effort (days-at-sea for given engine horsepower) that is translatable into species specific fishing mortality.

Question 2. What new tools and authorities are necessary to institute an effective multispecies management approach?

Answer. Tools include developing a better understanding of 1) catchability in a multiple species fishery, and 2) biological or ecological interactions among species.

The latter contains some difficult components because some of these interactions may involve recruitment.

Question 3. Is there enough flexibility in the National Standard Guidelines to manage the New England multispecies fishery as a unit?

Answer. I think there is enough flexibility in the National Standards to manage the New England multispecies fishing. One of the significant difficulties is the rebuilding idea, which is scientifically difficult to defend.

Question 4. How close are we to achieving multispecies and ecosystem management, respectively? Do we need more data to do this?

Answer. In principle, we are close to achieving multiple species management. Achieving ecosystem management will require substantial data. Its cost-effectiveness could come into question. The issue is really not so much "more data," rather, it is developing an improved conceptual basis for multispecies management. This improved conceptual basis will need to involve principles of optimality.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO RIP CUNNINGHAM

Question 1. In the 1999 fishing season, the groundfish regulations changed five times. Changing the rules for a fishery five times in one year appears to be a de facto disregard of National Standard 8, which requires the consideration of socio-economic impacts of regulations on fishing communities.

A. Do you have any recommendations to increase the focus on such factors?

Answer. First, to my knowledge, the NE Council has considered socio-economic impact in all their deliberations. Next, I do not believe that the whole management process can take a short-term perspective. If that is the case, then it is reflective of where we currently are with managing groundfish. Rebuilding groundfish resources is beneficial to the communities that use those resources. The process of rebuilding cannot be undertaken without some short-term economic dislocation. For too long the New England Council has been under the misapprehension that there can be gain without pain. It has not worked and cannot work without some sacrifice. The very fact that the Council is attempting to manage a living resource requires an ability to make the necessary changes in management on an immediate basis. The easiest strategy would be to close the entire fishery for a period of time, but this has not been an acceptable alternative.

B. What can be done to inject more flexibility into the Act?

Answer. Flexibility is, in part, responsible for the failure of a lot of management efforts by the Council. The flexibility aspect has been used by commercial fishing participants who don't like regulations and want to get around them. On the FMP side, flexibility has been built into the framework management strategy. I do not believe that any more flexibility is necessary.

Question 2. Please comment on whether you think that the Council decision-making process involves an adequate level of public participation and whether establishing standard operating procedures for its advisory committees would improve the Council's work.

A. Are you aware of any instances when the Council has not adequately considered an Advisory Committee recommendation? If so, please explain.

Answer. I am not aware of any instances when the Council has not adequately considered an Advisory Committee recommendation, although I am aware of instances where the Council's action may not have reflected the Committee's suggested approach. Perhaps the best way to manage the flow of information would be to have the Advisory Committee suggestions incorporated into the Species Oversight Committee recommendations to the Council.

Question 3. Do you support the Marine Fish Conservation Network recommendation that the Magnuson-Stevens Act should be amended to guarantee that more non-fisherman (specifically members of environmental organizations) are appointed to the regional fishery management councils?

Answer. I support better representation on the Councils of the broad spectrum of user groups interested in our marine resources. By any measure, the commercial fishing users have dominated the Council process. If either economic measures or participation levels were used to determine representation, the Council make-up would be substantially different. I am also concerned over the amount of influence that State marine fisheries leaders have over the process, but I do not have any panacea for that problem.

Question 4. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

Answer. As I stated in my oral testimony, I have a philosophical problem with transferring rights to common property resources. I am not sure that there is any way to mitigate this concern. On the other hand, I am coming to believe, as stated by Senator Stevens at the Hearing, that ITQ's may be our last option to try to save some of our fisheries.

Question 5. Please share your views on the conservation and management of Atlantic highly migratory species such as bluefin tuna and swordfish.

A. Do you believe that multilateral management through the International Commission for the Conservation of Atlantic Tunas (ICCAT) is the appropriate approach, or should the United States, through the regional fishery management councils and the National Marine Fisheries Service, manage these species unilaterally? Please explain.

Answer. I believe that multilateral management is the only real solution. Unfortunately, it is a painfully slow process. When it comes to billfish, such as marlin and swordfish, the US EEZ management can impact only 5 percent± of the total populations, so we need to have viable international management.

B. Should the United States strictly abide by the time and quota provisions of an ICCAT adopted rebuilding and conservation program for a given species, or should the United States be able to impose a different, either more or less restrictive, rebuilding schedule on its own fisherman? Please explain.

Answer. It is my feeling that the U.S. should not have the option to be less restrictive than the quotas imposed by ICCAT. If all the signatories had that ability, then the negotiations would be a waste of time and effort. On the other hand, if the U.S. wants to be more restrictive, that does no harm to the negotiated quotas and benefits the resource in the long run.

C. Are there times when it would be appropriate for the United States recreational or commercial fisherman to be required to shoulder a greater respective conservation burden than that required by ICCAT of other nations? If so, please explain.

Answer. As stated above, I do not believe more restrictive measures implemented by the U.S. on their own users has any detrimental impact on the international process. In some cases, it might be used as leverage to get other signatories to impose more restrictive measures themselves. A case in point could be restrictive measures to curb the waste of billfish bycatch in the longline fishery. This could be used to try to get other nations to help rebuild marlin populations. We are virtually the only nation that understands the value of billfish as a recreational resource.

D. Should all commercial and recreational sectors of HMS fisheries be expected to provide a comparable level of scientific data on their fisheries to ICCAT?

Answer. I do not have a problem with the concept, but feel that the implementation would be the crucial factor. Voluntary logbooks used by the commercial fishing industry have proven to be unreliable. That means a much greater number of observers would have to be used. There is also a great deal of information through observer covered sport fishing tournaments and this information is not being used.

E. Should ICCAT take greater steps to develop scientific information on recreational fisheries for highly migratory species internationally?

Answer. Yes, I feel that they should, but as mentioned above the U.S. is the only major recreational user of HMS species.

F. What, if anything, would you change about ICCAT and the manner in which the United States participates therein?

Answer. I would like to see the process move faster and that is not likely to change. From the U.S. perspective, I feel that the advisory committee meetings should be held earlier and then the U.S. position should be discussed with other nations that have been receptive to past U.S. positions. Discussions prior to the actual meeting might be fruitful in getting better decisions from the process.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO PENELOPE D. DALTON

Question 1. Over the past year, you have consistently testified that one of your highest priorities is to improve social and economic analyses of the agency's regulations. However, the Government Accounting Office (GAO) report, *Problems Remain*

with National Marine Fisheries Service's Implementation of the Magnuson-Stevens Act, concluded that NMFS has done little more than identify adverse economic impacts and has not satisfied the requirement to minimize such impacts. You have also maintained that National Standard 8 has been an important part of your decision-making process. Yet, GAO says that economic impacts are not considered early enough in the decision-making process to have an impact.

A. What changes, if any, do you plan to make administratively as a result of GAO's findings and recommendations to address social and economic impacts in the decision-making process?

Answer. Response was not available at the time hearing went to press.

B. In response to GAO's comments that NMFS needs to work more consistently with fishermen in research activities, the agency stated, in part, "Realistically, the criticisms are likely to continue as long as the industry's activities are constrained." What changes, if any, do you plan to make administratively to engage the industry more effectively?

Answer. Response was not available at the time hearing went to press.

C. In response to GAO's comment on NMFS's use of best available scientific information, the agency stated, in part, "A more complete description of the 'miscommunication' between NMFS, the Councils and those affected by the decision would be useful, with reference to specific situations." This comment implies that the agency may not be aware of any specific situations where there has been such a miscommunication or that the agency simply takes exception to the comment. Please explain in detail whether or not the agency is aware of any situations where there has been such a miscommunication. Furthermore, please explain why a more complete description of such situations would be useful, and how the agency would respond.

Answer. Response was not available at the time hearing went to press.

Question 2. During the hearing several witnesses suggested a shift from current MSY-based Fishery Management Plans to the use of Fishery Ecosystem Plans. The Secretary's recent decision on dogfish resulted in the termination of the directed dogfish fishery. Due to the low value of dogfish, the new catch limits will make the harvest of such fish economically infeasible. Consequently, it is safe to assume that much of the effort previously targeted at dogfish will be transferred to groundfish.

A. Please comment about the abilities of the regional councils to develop plans that would be ecosystem-based, rather than species-based. Include comments on how the interaction between dogfish and groundfish might be better incorporated in an ecosystem plan that accounts for predator-prey and competitive interactions.

Answer. Response was not available at the time hearing went to press.

B. Is sufficient scientific information available at this time to make the shift from species management to ecosystem management?

Answer. Response was not available at the time hearing went to press.

C. What would the resulting workload be for the regional councils if we shifted to ecosystem management at this time?

Answer. Response was not available at the time hearing went to press.

Question 3. One of NMFS's recommendations to change the Magnuson-Stevens Act would reinstate initial Secretarial review of council management plans—to allow the Secretary to make a preliminary determination on council actions. Currently, two to three months elapse before the Secretary makes a determination on a plan, and if it is disapproved, or partially disapproved, it can be many more months before the Council can modify and resubmit the plan. Obviously, this can leave a particular fishery with a great deal of uncertainty and in potential danger.

The stated intent of this recommendation is to shorten the time it takes to get a plan approved. However, this authority was eliminated in 1996 for the very same reason. Please explain why you now think initial Secretarial review will be more efficient?

Answer. Response was not available at the time hearing went to press.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO TOM HILL

Question 1. The Government Accounting Office (GAO) report, *Problems Remain with National Marine Fisheries Service's Implementation of the Magnuson-Stevens Act,* concluded that NMFS has done little more than identify adverse economic im-

pacts and has not satisfied the requirement to minimize such impacts. GAO also said economic analyses have not been sufficiently considered at the beginning of the decision-making process. Please explain in detail how the Council has minimized the social and economic impacts without this information?

Answer 1. The New England Council has minimized social and economic impacts in a number of ways to the extent possible, despite the lack of detailed social and economic information available. It is also important to bear in mind that at times it is *not* possible to minimize such impacts when overharvesting of a given resource requires effort reductions in the areas and seasons in which the fish are caught—and that inevitably this will impact the fleet sectors who fish during those seasons and in those areas. Nonetheless, our Council is not insensitive to the communities which derive their livelihood from the resources we manage.

- Many New England Council members have extensive experience in the fishing industry and, as a result, fully understand the impacts of difficult but necessary conservation measures.
- The general economic impacts of various types of fishery management measures are well-understood because they have been used many times before. These include closed areas, increased fish sizes, mesh sizes, reductions in days-at-sea, and trip limits. Ironically, economic analyses have demonstrated that days-at-sea reductions have had less negative and more positive impacts than other management alternatives (other than individual quotas, which currently are prohibited), but the Council has not imposed further days-at-sea reductions because of very strong opposition from commercial harvesters.
- The Council has listened very carefully to public input including input from the fishing industry and support industries. This might not be apparent because conservation restrictions imposed under National Standard 1 often cause severe short-term negative impacts on all groups.

Examples of this are:

- In recent actions to protect Gulf of Maine cod, the Council chose a mix of measures to minimize adverse impacts. It implemented seasonal closed areas rather than trip limits when data indicated the fish were sufficiently concentrated in specific areas and seasons. It also implemented trip limits to prevent directed fishing for cod so vessels could continue fishing for other species rather than more extensive area closures that would have virtually closed the fishery for certain groups of inshore vessels. A greater reliance on reduced trip limits would have increased discards and waste in the fishery and not achieved mandated conservation targets and a greater reliance on closures would have had more severe community impacts.
- Another example of how the Council minimized economic impacts was its choice of a 10-year rebuilding schedule for the scallop fishery. In the face of uncertain scientific advice, the Council chose the longest time period allowed under the SFA to rebuild the resource. It also chose a rebuilding schedule that delayed days-at-sea reductions. The scallop industry strongly criticized the Council for giving National Standard 1 priority over National Standard 8 while at the same time the Council's Scientific and Statistical Committee criticized the Council for not taking stronger conservation measures. The Council chose a mid-course. The most recent scientific assessment show a strong rebuilding of the scallop resource.

It is interesting to note that in a Portland Press Herald article on the recent increases in groundfish landings, one prominent industry member who filed a legal suit against Amendment 5 to the Northeast Multispecies (Groundfish) Plan about five years ago, stated, "We're ahead of every year back to '94. It's the fishery management plan working."

Question 2. During the hearing several witnesses suggested a shift from current MSY-based Fishery Management Plans to the use of Fishery Ecosystem Plans (FEPs). The Secretary's recent decision on dogfish resulted in the termination of the directed dogfish fishery. Due to the low value of dogfish, the new catch limits will make the harvest of such fish economically infeasible. Consequently, it is safe to assume that much of the effort previously targeted at dogfish will be transferred to groundfish.

A. Please comment about the ability of the Council to develop plans that would be ecosystem-based, rather than species-based.

Answer. Changing from the current FMP-based system to a two-tiered FEP/FMP-based system may be within the ability of the Council at some future point, but would be possible only if significant hurdles could be surmounted. It would, of course, require very substantial additional resources to acquire, analyze, and process all the information that would be necessary to accurately describe the ecosystem and its many inter-relationships. It also would be very important to only undertake this approach with realistic expectations and an understanding of the time it would take to fully develop and implement such a plan. It would also be important to have a clear understanding of the limitations that the Council would face in developing an FEP:

- We do not have a complete understanding of the ecological system that produces and supports fishes; and, like the essential fish habitat (EFH) initiative begun in 1996, much of the information required to develop a complete understanding is not currently available.
- We cannot forecast weather or climate and their effects on ecosystems. Much of the interannual variability of fish populations may be related to weather and climate cycles that cannot be predicted, resulting in uncertainty related to the effects of management measures.
- Systems evolve over time and knowing how the system works does not necessarily mean that an ecosystem would respond predictably to future changes.
- Our management institutions (Congress, NMFS, Councils) are not necessarily configured to manage at the ecosystem scale. Fish and the fisheries that pursue them are not easily aligned with our political and jurisdictional boundaries. The Gulf of Maine and Georges Bank are significant parts of the Northeast Shelf ecosystem, yet we share these areas with Canada and cannot be certain that ecosystem protection and management measures implemented in the United States will be mirrored in Canada, resulting at best a confounding of the effects of our management measures and at worst an undermining of our measures.

The 1998 Report to Congress by the Ecosystems Principles Advisory Panel entitled "Ecosystem-Based Fishery Management," recommended that Councils should continue to use existing Fishery Management Plans (FMP) for single species or species complexes, but that these should be amended to incorporate ecosystem approaches consistent with an overall Fisheries Ecosystem Plan (FEP). The FEP, the report said, would be used to provide Council members with a clear description of the fundamental physical, biological and human/institutional context of the ecosystem(s) within which fisheries are managed. The individual FMP's would continue to serve as descriptions of the specific management measures employed for each fishery operating in the region, but these management measures would be set within the greater context of the ecosystem described in the FEP. This two-tiered approach would be more appropriate and easier to implement than the wholesale replacement of existing FMP's with a new single FEP, according to the report.

Many fisheries managed by the Council operate quite independently and differently from each other and individual FMP's provide the Council with the flexibility to make changes to the management and specifications for these fisheries without impacts to other fisheries. The overarching FEP theoretically would be used to establish management baselines and guidelines for the individual FMP's. Once the Council developed the FEP, all changes to individual FMP's should be relatively transparent to the other fisheries operating within the ecosystem.

A wholesale change from FMP-based management to FEP-only-based management, however, may not be within the current ability of the Council, or at a minimum would be exceedingly difficult to implement. Rather than establishing a fairly static FEP and making relatively minor changes to individual FMP's, changes to the management or operation of an individual fishery would require a change to the overall FEP which would affect all fisheries and fishermen operating in the region. There is also the problem of inter-Council jurisdiction.

There are additional issues of concern. The American Association for the Advancement of Science (AAAS), National Oceanic and Atmospheric Administration (NOAA), and hundreds of scientific experts have described the boundaries of 49 large marine ecosystems (LME's) worldwide, of which the Northeast Shelf ecosystem is one. This ecosystem overlaps the jurisdiction of the New England and Mid-Atlantic Fishery Management Councils. Requiring a single FEP as the only management document for all fisheries within the ecosystem would require a joint plan for all New England and Mid-Atlantic fisheries. Any changes to one fishery would require joint approval from both Councils, further complicating an already complex system. Using the two-tiered approach the two Councils would need to share information and agree on cer-

tain operating principles and guidelines for the shared ecosystem, but then independently make changes to the individual fisheries they manage.

B. Is sufficient scientific information available at this time to make the shift from species management to ecosystem management?

Answer. In their book *Exploitable Marine Ecosystems: Their Behavior and Management*, Drs. Taivo Laevastu, Dayton Alverson and Richard Marasco (1996), describe five basic kinds of information required for marine ecosystem management:

- The determination of the present state of the ecosystem. The authors describe this as an expensive and nearly continuous process involving surveys, the collection of fishery dependent and independent data, analyses of these data using models and simulations, and the collection and processing of environmental data that describe the physical and temporal aspects of the ecosystem.
- The need to know quantitatively the processes affecting the natural fluctuations of the components of the ecosystem. The authors suggest that this level of quantitative knowledge is required to develop predictive models of the responses of fish populations and fisheries to changes in the ecosystem either through natural fluctuations or management strategies.
- The evaluation of a variety of economical aspects of fishing concurrently with the examination of the effects of different fishing intensities assigned in the various ecosystems models and simulations.
- The evaluation from the biological point of view of the state of the ecosystem resulting from the potential exploitation strategies.
- The determination of management criteria, such as TAC's, their allocation, management measures, and enforcement.

Underpinning these types of information "required for marine ecosystem management" is the need for mathematical models and simulations that describe the biological inputs and outputs of multispecies fisheries, the economic and social aspects of ecosystem management, and the environmental variables (weather, climate, and oceanic patterns) that affect ecosystem productivity, as well as the data required to run these models. Many mathematical models and simulations that address these needs either exist or are being developed (ECOPATH, ECOSIM, MSVPA, DYNUMES, PROBUB, NORFISK, BEAM 4, ERSEM, etc.). Much of the data currently collected by the National Marine Fisheries Service (fish and plankton surveys, commercial fish landings data, fish stomach contents, etc.), the U.S. Geological Survey (substrate and sediment mapping), the Global Ocean Ecosystems Dynamics Program (GLOBEC), the Cetacean and Turtle Assessment Program (CETAP), and the Global Ocean Observing System (GOOS) would contribute to our abilities to apply these models to the Northeast Shelf ecosystem. A very large amount of additional data, however, would be necessary, as would the continuation of existing data collection programs.

Luckily, groups such as NOAA and the Regional Association for Research on the Gulf of Maine (RARGOM) have convened symposia and published documents which have contributed much toward the state of our knowledge and understanding about the ecosystem processes operating in the Northeast Shelf ecosystem. Clearly, much remains to be done, although it may be many years before there is enough scientific information available to completely understand all of the parameters of the ecosystem and their cycles and interactions.

Question 3A. The 1994 NRC *Study on Improving Fishery Management* suggested the creation of an independent expert body—somewhat like the Marine Mammal Commission—to which technical and other disputes could be referred. In response, in the 1996 reauthorization we added Section 305(g) which allowed Councils to establish fishery negotiation panels to assist in developing specific conservation and management measures. A. Is this the right approach? B. Have any Councils convened these panels?

Answer. The Councils have been given the authority to manage fisheries in federal waters off our coasts. While the use of fishery negotiation panels may be useful in certain circumstances to resolve contentious issues or to encourage the development of new approaches, overall responsibility for decisions rests with the Councils, and ultimately the National Marine Fisheries Service. Considering these realities, it is not immediately clear that stakeholders would be any more satisfied with an alternative outcome given the necessity of any group to balance the competing and diverse interests identified during any management decision-making process in New England. To date the New England Council has not used such a mechanism.

Question 3B. I understand the Science & Statistical Committee (SSC) can be called in to resolve scientific disputes, but wouldn't these sort of independent panels be useful in providing expert guidance to Councils as they develop alternative or innovative management measures, and in resolving disputes about allocation or economic impacts of certain measures (i.e. under National Standards 4 or 8)?

Answer.

- Any set of management measures will always have impacts on allocation. No matter what group makes these decisions, whether it be a Scientific and Statistical Committee, a Social Sciences Advisory Committee (SSAC) or negotiation panel established solely to handle allocation problems, the outcomes always will seem unfair to those disadvantaged by the final management decisions. For example, as mentioned in an earlier response, quotas, trip limits and closed areas always affect some groups more than others. The development of independent ideas and creative solutions is to be encouraged, but not the establishment of an additional layer of decision-makers who will meet each time a particular group is dissatisfied with the management measures approved by the Council.
- Additionally, the Scientific and Statistical Committee is composed of independent scientists who volunteer a very limited amount of time, who have a professional interest in matters of science, and who are largely unfamiliar with the specifics of allocation issues. The primary responsibility of the SSC is to ensure that the Council bases its decisions on the best available scientific information (to meet its obligations under National Standard 2).
- Similarly the Council's Social Sciences Advisory Committee consists of social scientists known for their research on the social and economic impacts of management measures. The SSAC has the same primary responsibility to ensure that the best possible information is used to make management decisions. Similarly, they are not equipped to serve as an arbitration panel to resolve allocation issues among fishing groups.

Question 3C. If not, how can the Council address criticisms that decision-making is inequitable or under-representative?

Answer.

- The Council has a well-defined public process that provides adequate opportunity for input from and considers the interests of all public sectors including commercial and recreational fishers, conservation organizations and taxpayers.
- The Councils continually face controversial conservation and resource allocation decisions. By definition, controversy means that there will be groups that will not be happy with the actions that attempt to resolve the issues. It is difficult for the Council to act as a representative body, because there are a very limited number of Council appointments and a great number and variety of interest groups in the New England fisheries as well as limited resources to fund Council operations.
- The Council is committed to continually improving its process to provide the best exchange of information between decision-makers and the public. To this end it has:
  - undertaken the responsibility, in cooperation with NMFS, for producing and improving annual Stock Assessment and Fishery Evaluation (SAFE) Reports to provide the public with the information it needs to fully participate in the FMP development process;
  - strengthened its advisory panel process;
  - engaged in outreach through numerous meetings of its committees in various areas of New England, through its web site, news releases, and participation of the Chairman and Executive Director in constituent meetings at the local level; and
  - tasked its Social Sciences Advisory Committee (SSAC) to provide recommendations on improving SAFE reports and impact analyses, particularly with respect to identifying critical social and economic issues and analyses early in the plan development process.

The New England Council appreciates the opportunity to respond to the follow-up questions forwarded by the Committee. If you should require further information, please feel free to contact either Chairman Tom Hill or Executive Director Paul Howard.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO FRANK MIRARCHI

Questions.

1. It has been suggested that the regional councils should switch from single or multi-species Fishery Management Plans to Fishery Ecosystem Plans.

A. Please assess the amount of work this would create for the regional councils?

B. Is there currently enough life history and environmental data to create such an ecosystem plan?

2. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

3. Does the term "overfishing" need to be changed? If so, please describe.

Answers.

As you are aware the Magnuson-Stevens Fishery Conservation and Management Act mandates stock specific fishing mortality targets and biomass thresholds with the laudable objective of producing maximum sustainable yield on a continuing basis. I believe that this strategy is self-defeating as present technology does not permit discrete harvest rates among commingled stock components of a multispecies fishery. Either overall harvest rates are limited by the fishing mortality allowable for the weakest stock in the multispeices complex or we soon confront regulatory discarding as is now the case with Gulf of Maine cod.

A superior alternative would be to allow managers to target MSY across a stock complex. This would require the Act to be amended to allow temporary overfishing on some stocks. Guidelines should be established to prevent the risk of a stock collapse while still allowing biomass to rebuild to BMSY but at a slower rate than the 10 years plus 1 generation now specified.

Some have recommended a further broadening of the management horizon to encompass entire ecosystems within a management unit. Presumably this approach would embrace variables and contingencies which are external to fishing activity. Some of these are undoubtedly human induced—examples include pollution, estuarine habitat degradation and destruction of fish larvae by industrial scale cooling systems.

To the extent that these examples and others are regulated activities, the RFMC's already have the opportunity to comment on fishery impacts during the permitting process. Expanding the Council's role would require Legislative action.

However, ecosystems are thought to exhibit great natural variability independent of anthropogenic causes. A notable example off the New England coast is the dynamic balance among stocks of sand lance, mackerel, and herring, which appear to be in competition for the same ecological niche. These stocks interact with New England groundfish at several levels: (1) providing alternative fisheries, (2) providing a forage base and (3) exhibiting predation on the pelagic larvae of demersal species.

At this time I believe we lack sufficient knowledge to introduce an ecosystem approach into the Council process. However, I am concerned that some calculations of biomass necessary to produce MSY (Bmsy) included in our overfishing definitions may be unrealistic and should be re-examined in the light of potential shifts in carrying capacity.

In the meantime I hope that NOAA's research priorities will continue to reflect the need for expanded knowledge on factors beyond fishing mortality which adversely affect the productivity of our fisheries. This information is especially valuable given the Council's limited role as advocate for fisheries in many permitting procedures.

Finally, it is my desire that the 1996 prohibition on ITQ based management measures be allowed to expire.

Please bear in mind that I am not requesting that Congress require ITQ's be implemented but merely that this become a legitimate option for RFMC consideration. The contrarian argument seems to hold that rights based management in general and ITQ's in particular are so pernicious that legitimate debate on their merits cannot take place. This argument is so logically and legally flawed that it scarcely requires rebuttal.

Furthermore, if New England fisheries were undergoing a renaissance under the present programs I would be less strident in seeking alternatives. However, the biological gains which we observe are being muted by increasing social and economic dislocation. In the southwestern Gulf of Maine, where I fish, we seem to be re-discovering how the Pacific Halibut fishery became a semi annual derby. Please enable us to benefit from the lessons of history by including rights based management as an option for New England.

Thank you for the opportunity to comment on these important issues.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO MARJORIE MOONEY-SEUS

Question 1. Several of the witnesses testified that Maximum Sustainable Yield is an outdated concept.

A. In the absence of Maximum Sustainable Yield, what would you advocate as a responsible benchmark to achieve sustainable yield?

Answer. I do not believe that Maximum Sustainable Yield (MSY) is an outdated concept. However, I do think that there has been considerable misunderstanding as to exactly what is meant by this term. Some have interpreted the term to mean that all fish stocks must be rebuilt to historic high levels or virgin stock size and then maintained at these levels. In reality, the word maximum refers to the catch or yield, not the population level (although that catch must be low enough to be sustainable over the long term). MSY is the catch available from a population at B_{MSY}; for many species this level is roughly half of the virgin (or unfished) biomass. Furthermore, MSY is not a set number to be maintained but rather a dynamic property (a range) to achieve better fishery yields. Lastly if you look back to the 1960s when fishing pressure was less than it is currently, many of the commercial fish stocks were at high levels. So, there is no real evidence to suggest that density is a limiting factor in terms of population growth rates. Therefore, a rebuilding target of B_{MSY} to achieve MSY is not only reasonable, but serves to maximize long-term benefits to the fishermen as well as the fish populations.

While today New England commercial fisheries are a lucrative business (producing almost $540 million dollars in dockside revenues in 1998), current catch levels are only a fraction of their estimated long-term potential; reaching this potential could translate into exponential benefits for the regional economy. According to the National Marine Fisheries Service (NMFS), if we were to rebuild New England commercial fish stocks, dockside revenues could be in the billion-dollar range.

Under the current management regime, there have already been some positive signs of fish population recovery and ensuing benefits to the region's fisheries. For instance, the adult stock biomass of haddock has increased fourfold since 1993 and is at its highest level since the early 1980s; gray sole (witch flounder) spawning stock biomass has doubled since 1995 and is reported to be near B_{MSY} due to favorable recruitment, lower fishing mortality and reduced bycatch in small mesh fisheries; Georges Bank yellowtail flounder total stock biomass has increased substantially and is expected to be rebuilt in about three more years if the current management strategy remains in place.

Clearly, if we were to rebuild our commercial stocks to targets associated with MSY (or B_{MSY}), ultimately, everyone would benefit—the ecosystem as well as the fisherman—because with healthy, abundant fish stocks, it's cheaper and easier to catch fish.

In addition, if stocks are rebuilt and kept at healthy levels, Council and NMFS staff would be able to spend less time revising fishing regulations and have more time to focus on improving habitat, bycatch and ecosystem provisions.

B. What further data would be required to quantify this benchmark?

Answer. N/A. I believe population levels that yield MSY are appropriate rebuilding targets; data required to calculate or estimate these targets are for the most part available.

However, it would be advantageous to increase collaboration among the fishing industry and other relevant stakeholders in order to collect more real time data and information so that adjustments to management decisions, if needed, could be made in a more timely manner. This would require appropriate investment in enabling technologies such as Vessel Monitoring Systems (VMS) and upgrading VMS data management infrastructure. The Canadian Maritimes have had considerable success with this type of adaptive management in their herring fisheries.

Question 2. You testified that the emphasis of this reauthorization should be on fine tuning the Act rather than rewriting significant components. However, you also stated that the Act should be amended to require Fishery Ecosystems Plans instead of the current system of single or multi-species Fisheries Management Plans.

A. Isn't this a major departure from the current management structure contained in the Sustainable Fisheries Act? Please explain.

Answer. I am not suggesting a departure from the current management structure contained in the Sustainable Fisheries Act (SFA) but rather an expansion of the cur-

rent structure. Through the SFA, we have already taken some important steps to consider ecosystem dynamics and impacts on ecosystems as a result of human activities. This is evidenced by the SFA focus on minimizing bycatch and identifying and protecting Essential Fish Habitat.

As I stated in my testimony, I see the SFA as a work in progress. However, further refinements in the Act are warranted. We cannot continue to look at management actions for species in isolation. We need to recognize that what we do with respect to a given species has an impact on its predators and its prey and that our actions in one fishery can impact the effectiveness of management in other fisheries. Therefore, the Act should provide provisions for considering management actions at multiple levels—for considering the ecosystem not just its individual components.

It also is important that we clearly acknowledge that overfishing is only part of the problem; there are other factors that contribute to a decline in fish stocks, such as environmental conditions, pollution and natural variability. By moving towards ecosystem management we can more readily account for these other variables.

Single or multi-species Fishery Management Plans (FMPs) should form the basis of management actions and outline specific measures necessary to maintain fish stocks. However, FMPs should be amended to include an evaluation of management actions on other species, including predator-prey interactions, where information is available. An Ecosystem Management Plan (EMP) (others have referred to this as a Fishery Ecosystem Plan (FEP)) also should be developed for each major marine ecosystem within a Fishery Management Council's jurisdiction as a means for formally linking the FMPs. Included in the EMP should be information on the structure and function of ecosystems, including the geographic extent of ecosystems and their biological, physical and chemical dynamics; a description of the significant food web including key predator-prey relationships and habitat needs of different stages of species that make up the significant food web, indices of ecosystem health and integrity; and an outline of a long-term monitoring program to evaluate fishery dependent and fishery independent changes in the ecosystem. Used in concert FMPs and EMPs can lead to more informed management decisions.

B. Please assess the amount of additional work this could create for the regional councils.

Answer. While this effort will require more work on the part of the councils, if reasonable timeframes are adopted for completing the work, it is achievable. For instance, a possible timetable might be the following: once the Act is passed, NMFS would have one year to compile and distribute data to the Councils; and while the Councils were amending all their FMPs to include predator-prey information in Year 2, NMFS would begin to assemble additional data for the EMPs. It would complete this task in Year 3. At the start of Year 4, NMFS would provide the Councils with all data and information for the EMPs. The Councils would then have two years to prepare EMPs incorporating both NMFS data and data collected through collaborative research projects. In total, the project would span five years. If the timeframe were to be any shorter than this, the councils and NMFS would require additional resources to complete the work.

The key here is that reasonable timetables be adopted and adhered to not only by the Councils but also by the federal agencies providing the data. One of the difficulties encountered by the New England Fishery Management Council's Habitat Committee and its Advisors in assembling Essential Fish Habitat (EFH) designations were long delays in receiving guidelines for preparing the designations and corresponding species data and information from federal agencies.

C. Do you believe that NMFS and the councils have enough life history and environmental data that would be needed to create such an ecosystem plan?

Answer. I believe there is enough available data to begin to amend existing FMPs and create a foundation for the development of an EMP. What is needed is directive to appropriate staff to afford them time to overlay existing data and information. However, the operative word here is "begin." This should not be viewed as a short-term process. As is the case with refinement of EFH and designation of Habitat Areas of Particular Concern (HAPCs), a foundation of data and information must be established and then built upon.

A challenge that must be overcome is access to data from other federal and state agencies. For instance, the U.S. Navy and the National Ocean Service both possess considerable biological and ecological information, respectfully. The adoption of legislative language urging enhanced cooperation among various agencies at the federal and state level would enhance data and information exchange.

It also is critical that there be a clear mandate that all Councils adopt a regional strategic research plan and immediately begin to implement various collaborative applied research projects to collect additional biological and ecological data that can

be used to refine FMPs and EMPs. In New England, the availability of $4 million dollars for collaborative research in the region and the prospects of more monies next year afford the opportunity for strategic planning to ensure collection of needed ecological information and data. In the short term, further studies of predator-prey relationships within the Gulf of Maine should be encouraged.

Question 3. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

Answer. The national moratorium should be lifted so that the appropriateness of ITQs as a management tool can be assessed at the regional level. At least some participants in New England fisheries seem interested in exploring ITQs as a management option.

However, ITQs have the potential to threaten the social fabric of New England fishing communities and may have limited conservation value. Managers should therefore consider incorporating mechanisms to maintain fishing community integrity as well as to ensure that ITQs are closely tied to effective fish conservation measures. Specifically, ITQ frameworks should be flexible enough so that managers could consider measures to limit the number of licenses one individual or institution could hold, maximize conservation benefits of ITQs, regulate the cost of ITQs and ensure access for new entrants into fisheries once resources are rebuilt (e.g., a set number of licenses should be set aside and apprenticeship programs developed). If ITQs only result in the consolidation of fishing rights in the hands of a few large corporate enterprises, they are not a viable option for New England.

Furthermore, if the moratorium were lifted, it would be worthwhile to consider experimentation with "community-based rights schemes" which give management authority to a broad set of stakeholders to determine if the concept is as attractive in reality as it is in theory.

Question 4. Does the term "overfishing" need to be changed? If so please describe?

Answer. No, I believe the term is satisfactorily defined. However, the definition of "conservation and management" should be amended to require that management measures include a margin of safety particularly when there is scientific uncertainty.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO REAR ADMIRAL GEORGE NACCARA

Summer Transfer Impacts on Operations

Question. During the summer months, Coast Guard personnel will be moving between duty stations which will result in some of the agency's greatest shortages. For routine, non-emergency operations, please describe, by percentage of aircraft patrol hours and cutters days, any resulting reduction that will likely occur from June–August 2000, compared to June–August 1999, in fisheries law enforcement, search and rescue, and other multi-mission responsibilities in your district?

Answer. Summer is the season during which many of our military personnel transfers occur. These transfers often create temporary and planned reductions in the number of personnel qualified and available to fulfill the responsibilities of a given duty station. However, personnel transfers ordinarily do not affect the number of hours our cutters or aircraft are employed, nor do we expect employment hours to be significantly reduced from June–August 2000 due to personnel transfers.

Impact of Reduced Operations on Fisheries Law Enforcement

Question. You testified that your district share of the reduced non-emergency operations could be up to 35 percent in aircraft patrol hours.

In the area of fisheries law enforcement, what specifically are you likely to forego during this period of reduced operations? Please describe by percentage, aircraft patrol hours and cutters days, and reduction in New England fisheries law enforcement.

Answer. The Coast Guard will not forego the enforcement of any particular fisheries regulations during the fiscal year 2000 period of reduced operations. Reductions relating to fisheries law enforcement operations will be applied equally to all Coast Guard fisheries enforcement missions in New England. In general, the Coast Guard will continue to deploy one major cutter to New England for fisheries enforcement patrol at all times. The annual hours allocated to smaller cutters performing New England fisheries enforcement have been reduced 33 percent. Aircraft patrol hours in support of fisheries enforcement have been reduced 18 percent for the remainder of the fiscal year.

Since the Coast Guard announced those reductions, the Congress recently finished work on the FY 2001 Department of Defense Military Construction Appropriations Bill, which included FY 2000 supplemental funding for the Coast Guard. This additional funding will provide for the most immediate requirements of the Coast Guard.

Coast Guard District One Operational Funding and Personnel Levels

Question. What funding and personnel levels are necessary to return your district to a normal operational pace?

Answer. The Administration supports supplemental funding at $44 million for the Coast Guard to meet unanticipated additional costs in fiscal year 2000.

National Standard 10 and Fisheries Management

Question. You testified that you closely monitor compliance with National Standard 10 and attempt to ensure that fisheries regulations do not encourage unsafe fishing practices.

Please describe how National Standard 10 and fisheries management decisions are integrated into the Coast Guard's Operation SAFE CATCH.

Answer. While Operation SAFE CATCH supports the concern for the safety of life at sea expressed in National Standard 10, National Standard 10 and fishery management decisions are not integrated into SAFE CATCH. National Standard 10 and SAFE CATCH have two different, though related purposes. National Standard 10 addresses the impact fishing regulations may have on the safe conduct of a fishery under the Magnuson-Stevens Fishery Conservation and Management Act, and is administered by fishery management councils. National Standard 10 requires that fishery management plans and any implementing regulations, to the extent practicable, promote safety of human life at sea. In our role as a non-voting member of fishery management councils, the Coast Guard makes recommendations regarding the safety implications of proposed fishery management plans. It is the councils' prerogative to act on the Coast Guard's recommendations or not.

Operation SAFE CATCH addresses the safety requirements under the Commercial Fishing Industry Vessel Safety Act, which the Coast Guard administers. It is focused on fishing vessel material condition and compliance with safety regulations. SAFE CATCH is designed to identify those vessels with serious safety deficiencies, and to ensure that they operate with the proper equipment at a minimum. The Coast Guard does this by encouraging voluntary, non-punitive dockside examinations to identify a vessel's safety discrepancies, and then educating the owner or master on the compliance requirements for that vessel. This dockside education is complemented by at-sea enforcement, where the Coast Guard checks vessels for compliance, cites those in violation, and directs unsafe vessels to port.

Trends in Fisheries Management

Question. What particular trends, if any, do you see in fisheries management that you feel will encourage or discourage dangerous fishing practices?

Answer. The primary issue in District One encouraging dangerous fishing practices has been the closing of inshore fishing areas for extended periods. Without access to customary near shore fishing grounds, some small boat fishermen may feel compelled to take their vessels further offshore than is safe or prudent. Similar concerns arise regarding the proposed large pelagic longline closures in the Southeast Atlantic and Gulf of Mexico.

The other general management measure of concern to the Coast Guard is the use of short fishery openings, sometimes called "derbies." Derby fisheries do not occur in District One. However, the Bluefin Tuna Fisher last year suffered similar effects. Exceptionally good fishing in late September and early October of 1999 enticed hundreds of fishermen, many not properly equipped, fifty miles offshore to catch the large fish. Three vessels capsized, two while trying to land 400+ pound fish, and two others were ordered to return to port because they did not have required safety equipment. The National Marine Fishery Service (NMFS) closed the fishery on October 3, almost three months early, based on the large number of fish landed. In some derby fisheries, strong economic incentives can entice fishermen to fish in unsafe conditions, such as poor weather.

While these issues are of concern, the Coast Guard is hopeful that the addition of National Standard 10 in the Magnuson-Stevens Fishery Conservation and Management Act will institutionalize safer fishing practices.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO PAUL PARKER

Question 1. In the 1999 fishing season, the groundfish regulations changed five times. Changing the rules for a fishery five times in one year appears to be a de facto disregard of National Standard 8, which requires the consideration of socio-economic impacts of regulations on fishing communities.

A. Do you have any recommendations to increase focus on such factors?

Answer. Ironically, the precise reason why regulations changed five times in 1999 was due to the New England Council's attempts to minimize the socio-economic impacts of rebuilding Gulf of Maine cod. Rather than follow the Magnuson-Stevens Act's guidance of precautionary management, the Council has consistently erred in favor of less conservation and more socio-economic consideration. Time and again, our failure to conserve enough fish to rebuild our stocks has triggered the need to generate stronger regulations in the future. An endless negative feedback loop has been created. Too few fish leading to too little regulation leading to fewer fish (albeit relative to ambitious ten year rebuilding schedules) and so on and so on.

I only point out this feedback loop to illustrate the basis for my testimony that the Regulatory Flexibility Act and National Standard 8 do not permit undermining fish conservation measures in order to minimize the socio-economic impacts. In contrast, the Regulatory Flexibility Act and National Standard 8 prescribe that in an instance where several alternatives are equally protective of marine fish, but have varying degrees of adverse economic impacts to fishermen, then NMFS should choose the alternative with the least economic impact. We must save the fish first to save the fishermen.

Having clarified my position on the example that you provided in your question, I do agree that the New England Fishery Management Council is unprepared to focus on any socio-economic factors whatsoever. This is primarily due to NMFS failure to collect socio-economic data. I cannot remember a time when the New England Council was ever considering multiple management options that would all satisfy the conservation and rebuilding objectives necessary to warrant a comparative socio-economic analysis. However, if a situation did arise where several alternatives were equally protective of marine fish then NMFS and the Council would have no basis by which to recommend one option over another. The need for socio-economic data is a critical priority.

B. What can be done to inject more flexibility into the Act?

Answer. Increased flexibility with regard to the consideration of socio-economic factors would be detrimental to the fish, the fishermen and our coastal communities. In order to protect our coastal communities, the Act must remain clear that conservation of the resource supercedes the consideration of socio-economic factors. The long term viability of our commercial fishery depends on strong conservation and unless we have strong language in the Act to guarantee that our fish stocks rebuild then our coastal communities will continue to reside on the brink of economic collapse.

Question 2. Please comment on whether you think that the Council decision-making process involves an adequate level of public participation and whether establishing standard operating procedures for its advisory committees would improve the Council's work.

A. Are you aware of any instances when the Council has not adequately considered an Advisory Committee recommendation? If so, please explain.

Answer. The Advisory Panels have been held hostage by Council Committees for the past two years. By forcing Advisory Panels to attend only joint meetings with the Committees, we have essentially lost our ability to formulate discrete policy recommendations on the record. Our insights are wrapped up in the politics that hamper the Council's ability to do good work. Over the past two years, I have witnessed scores of fishermen quit the advisory process because it has become such a farce.

The function of the advisory panels is to further develop the potential for good grass-roots, bottom-up management development within the Council process. When I began serving on advisory panels, we were allowed to meet independently BUT only to respond to Committee direction and direct questions. We had no autonomy over our agenda but responded to the Committee and as a rule took harder stands than the Committee or the full Council. I believe that if the advisory panels are to succeed and provide meaningful input to the Committee and Council that they must be allowed to meet independently and to direct their own agenda to some degree.

Question 3. Your organization is a member of the Marine Fish Conservation Network.

A. Do you support the Network's recommendation that the Magnuson-Stevens Act should be amended to guarantee that more non-fishermen (specifically members of environmental organizations) are appointed to the regional fishery management councils?

Answer. The Cape Cod Commercial Hook Fishermen's Association occupies a unique niche in the Marine Fish Conservation Network. We believe that the sustainability of our coastal communities, our local economies and our marine resources depends on careful examination of serious problems such as high levels of bycatch, habitat degradation and overfishing. We are working with the MFCN to uphold and strengthen these components of the 1996 Sustainable Fisheries Act in the current reauthorization process.

However, there are some aspects of the Network agenda that we do not agree with 100 percent. Some compromise is inherent in such widespread collaboration. Members of environmental organizations are by definition not any better conservationists than some fishermen. In fact, some of the best conservationists on the New England Council in recent years have included fishermen such as Bill Amaru and Pat White. The best way to ensure the long term sustainability of our fisheries will be to maximize fishermen's input and try to maintain as many conservation minded fishermen on the regional councils as possible.

B. During the next round of council appointments, do you believe that fishermen who currently serve on the New England Council should not be re-nominated in favor of the staff of environmental organizations?

Answer. Definitely not.

C. Please describe in detail your involvement in the development of the Network's recommendation to Congress to change the Magnuson-Stevens Act.

Answer. The Cape Cod Commercial Hook Fishermen's Association has been instrumental in the Marine Fish Conservation Network. However, much of the current agenda had been developed prior to our admission to the Network and we have expended tremendous effort to educate the non-fishing members of the MFCN about critical issues in fisheries management. By working closely with the Network, the CCCHFA hopes to instill consideration of fishermen and fishing communities in the Network agenda.

Fishing members of the CCCHFA have made presentations to members of Congress regarding the critical nature of bycatch reduction and habitat protection in New England. The CCCHFA has been on the Network Board of Directors for the past year and I have been on the Executive Committee for several months. I will not be serving the Executive Committee after June 1, 2000.

Question 4. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

Answer. I wrote the following Op-eds which appeared in the Boston Globe and Providence Journal. I would look forward to working with Senator Snowe in any way possible to continue the moratorium on ITQs.

Attachments

LET'S NOT PRIVATIZE OUR OCEANS

Boston Globe, May 5, 2000

A month ago, the U.S. Senate Subcommittee on Oceans and Fisheries held field hearings in Boston over whether or not to privatize the oceans.

A group of businessmen is trying to remove the moratorium on "individual transferable quotas," which give the holder exclusive rights to catch specific types of commercial fish. Before we foolishly parcel out the ocean, we ought to consider the evidence from 70 years of experience with another form of allotment.

The grasslands of Arizona may seem a long way from Cape Cod, but the West bears the scars of a wrongheaded attempt to protect a similarly precious and threatened resource. Established in 1934, grazing allotments were intended to end overgrazing by giving farmers the right to graze their livestock on sections of publicly owned land.

The number of cattle permitted per area depended on how many the government thought the land could support. This was determined by the variety and quantity of edible plants growing on the range. Allotments were intended to make ranchers better stewards of the land through ownership.

By all accounts, grazing allotments have been a dismal failure. At the last official survey of rangeland in 1980, only 15 percent of the land could be classified as good. The overwhelming majority was fair to very poor, meaning that of all potential plant species once present, up to four-fifths had vanished.

And so it will be with New England fisheries if transferable quotas become a management tool. Like grazing allotments, quotas would divide up the fish in the ocean among a handful of commercial operators. They—or their agents—will have exclusive rights, forever, to take a share of the ocean's resources.

This privatization scheme would only hasten the decline of fish stocks. Many species are vanishing because habitat is being degraded by heavy equipment dragged across the seabed. By permitting this gear, we are preventing breeding areas from recovering, and fish stocks will never rebuild to plentiful levels. Privately held quotas will not correct this problem or restore habitat.

Fish stocks in coastal waters are also declining as a result of bycatch—fish caught indiscriminately along with the intended species. New England fisheries lack an effective force of paid observers who keep track of everything caught aboard each fishing vessel. Instead, landings are counted to estimate fishing mortality. The absurdity of this approach was highlighted last May when the limit for cod in the Gulf of Maine was reduced to 30 pounds per trip. This Draconian measure did not help reduce mortality; it only generated more dead and wasted discards as operators culled their nets for the most marketable cod.

Transferable quotas would make the problem of bycatch worse. In other fisheries, operators often "high grade" their landings. This is the practice of discarding all but the largest fish. Faced with scarcity of their allotted species, quota holders in the Northeast could take months, even a year, to reach their limit by keeping only the choicest specimens, leaving in their wake tons of dead and dying fish.

Transferable quotas also spell doom for fishing communities. In recent times of uncertainty, fishermen have been advised to shift their focus from groundfish, like cod or halibut, to dogfish. We have been told to sell back our boats. Today, many inshore fishermen can't make a living pursuing groundfish, because the stocks have moved too far off shore.

While we wait for species to recover, we support ourselves as painters or construction workers. When the quotas are handed out, the fish in the Gulf of Maine and Georges Bank will be divided among corporate fleets. Many of the quotas will go to foreign companies operating through domestic fronts. Private investors will grab the others, hoping to make a quick buck.

Individual transferable quotas would no more save New England's fishing industry than the grazing allocations saved Western grasslands. Besides, the Sustainable Fisheries Act already provides the basic tools we need to rebuild sustainable resources. By enforcing the act's provisions, we can protect habitats for spawning, feeding, and shelter. Furthermore, the law enables us to establish and enforce limits on bycatch by forcing owners to acknowledge their impact on species other than their target fish. Both of these measures will work, but not overnight.

Now is the time for New England's fishermen to renew their commitment to restraint as nature does its work. Above all, we must not allow impatience to force us into making mistakes. That is the surest way to condemn our livelihoods to extinction.

SHOULD WE GIVE AWAY THE OCEANS?

Providence Journal, April 22, 2000

TODAY, EARTH DAY, as communities pitch in to clean up beaches, harbors and estuaries, a group of businessmen will be hard at work trying to privatize the oceans. They want to lift the moratorium on Individual Transferable Quotas, which give the holder exclusive rights to catch specific types of commercially valuable fish.

But before we foolishly parcel out the oceans, we ought to consider the evidence from 70 years of experience with another form of allotment. The grasslands of Arizona may seem a long way from the blue waters of Cape Cod, but the West bears the scars of a wrong- headed attempt to protect a similarly precious and threatened resource. Established in 1934, grazing allotments were intended to end over-grazing of the range by giving farmers the right to graze livestock on sections of publicly owned land. The number of cattle permitted per area depended on how many the government thought the land could support. This, in turn, was determined by the variety and quantity of edible plants growing on the range.

Allotments were intended to make ranchers better stewards of the land through ownership. By all accounts, grazing allotments have been a dismal failure. At the last official survey of rangeland in 1980, only 15 percent of the land could be classi-

fied as good. The overwhelming majority was fair to very poor, meaning that of all potential plant species once present, up to four-fifths of them had vanished.

And so it will be with New England fisheries if Individual Transferable Quotas become a management tool. Like grazing allotments, quotas will effectively divide up the fish in the ocean among a handful of commercial operators. They or their agents will have exclusive rights, forever, to take their share of the ocean's resources. This privatization scheme will only hasten the decline of fish stocks. Many species are vanishing because habitat is being degraded by heavy equipment dragged across the seabed. By permitting this gear, we are preventing breeding areas from recovering, and fish stocks will never rebuild to plentiful levels.

Privately held quotas will not restore habitat. The stocks in coastal waters are also declining from bycatch, which are fish caught indiscriminately along with the intended species. New England fisheries lack an effective program of paid observers who keep track of everything caught aboard each fishing vessel. So instead, landings are used to estimate fishing mortality.

The absurdity of this approach was highlighted last May, when the limit for cod in the Gulf of Maine was reduced to 30 pounds a trip. Such a draconian measure did not help reduce mortality; it only generated more dead and wasted discards, as operators culled their nets for the most marketable cod. Transferable quotas will actually make the problem of bycatch worse.

In other fisheries, operators often high-grade their landings. This is the practice of discarding all but the largest fish. Faced with scarcity of their allotted species, individual quota holders in the Northeast could take months, even a year, to reach their limit by keeping only the choicest specimens, leaving in their wake tons of dead and dying fish.

Individual Transferable Quotas also spell doom for our fishing communities. In recent times of uncertainty, fishermen have been advised to shift their focus from groundfish, like cod or halibut, to dogfish, a type of shark. We have been told to sell back our boats.

Today, many inshore fishermen can't make a living pursuing groundfish because the stocks have moved too far off shore. So while we wait for species to recover, we support ourselves as painters or construction workers. But when the quotas are handed out, the fishes in the Gulf of Maine and on Georges Bank will be divided up among corporation-based fleets.

Many of the quotas will go to foreign-based companies operating through domestic fronts. Others will be bought by private investors, hoping to make a quick buck by exploiting a scarce commodity.

Individual Transferable Quotas will no more save New England's fishing industry than the grazing allocations saved western grasslands. Besides, the present Sustainable Fisheries Act provides the basic tools we need to rebuild sustainable resources. By enforcing its provisions, we can protect habitats for spawning, feeding, and shelter. Furthermore, this law enables us to establish and enforce limits on bycatch by forcing owners to acknowledge their impact on species other than their target fish.

Both of these measures will work, but not overnight. This Earth Day, then, is a good time to renew our commitment to restraint, as nature does her work. Above all, in our impatience, we must not repeat the mistakes of grazing allotments and condemn our livelihoods to extinction.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO DR. BRIAN ROTHSCHILD

Question 1. Several of the witnesses testified that Maximum Sustainable Yield is an outdated concept.

A. In the absence of Maximum Sustainable Yield, what would you advocate as a responsible benchmark to achieve sustainable fisheries?

Answer. Maximum Sustainable Yield is a well-defined concept. It is based upon a simple well-known theory. It's utility is somewhat narrow when compared to the needs of fishery management. In other words, the concept in its simplest form does not take into account more than one species at a time. In addition, the simplest Maximum Sustainable Yield theory is based on populations that have a balanced age structure or are in equilibrium, while most actual populations are not in equilibrium. More importantly, the magnitude of Maximum Sustained Yield for any stock is calculated based upon an average of many years of data. This means that if there was a downturn in environmental conditions, then the Maximum Sustainable Yield would generate fishing mortality that was too high and vice versa.

The main point of all this is that Maximum Sustainable Yield is a useful index, but it requires a lot of interpretation. Because different analysts can arrive at dif-

ferent estimates of Maximum Sustainable Yield for the same data and because different analysts can ascribe different degrees of certainty to an estimate of Maximum Sustainable Yield, a degree of seeming arbitrariness is inevitable.

The point is not so much to change the Maximum Sustainable Yield criteria, but to point out for each stock its many qualifications so that the decision-makers (i.e. the Council members and the Secretary) can take these into account when setting targets.

Other important benchmarks include the yield-per-recruit index and the level of recruitment.

My main point, then, is that scientists should calculate Maximum Sustainable Yields and present them with the various pros and cons, and decision-makers should take these into account when setting regulations. Because of the nature of the index, the rule of common sense and flexibility needs to prevail.

B. What further data would be required to quantify this benchmark?

Answer. Much of the data used to compute Maximum Sustainable Yield and other indices is based upon scientific surveys, which are highly criticized by fishermen. Actually, improved estimates would be obtained if data directly from the fishing boats could be folded into the analysis. The criticism would be muted.

Question 2. It has been suggested that the regional councils should switch from single or multi-species Fishery Management Plans to Fishery Ecosystem Plans.

A. Please assess the amount of work this would create for regional councils?

Answer. We know what single species management is. We know what multiple-species management is. We do not know what ecosystem management is in the sense that it can be defined in almost an infinite number of ways. This, again, raises the issue of arbitrariness. At this point in time, we need to focus on multispecies management not ecosystem management. I actually think that the amount of work might be less rather than more in the sense that each fishery could be managed as a coherent unit. We should change the modality of management carefully because of unintended consequences. The rebuilding strategy in the present form of the Act is a good example as it is scientifically questionable.

B. Is there currently enough life history and environmental data to create such an ecosystem plan?

Answer. The collection of life history and environmental data needs to be expanded and focused, particularly in regard to the needs of fishery management. This is true for single or multiple species management. I would put priorities on 1) data from the fishing fleet, 2) environmental data, and 3) life history data.

Question 3. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

Answer. The idea of ownership is important. I would lease a stock or mix of stocks to the industry given that they maintained production and conservation standards. My concern with Individual Transferable Quotas is that they may be more costly than other forms of management.

Question 4. Does the term "overfishing" need to be changed? If so, please describe.

Answer. "Overfishing" should not be used since it can only be defined in special cases. We should target an "optimal management," which is the *flexible* application (as implied in National Standard 8) and interpretation of the various criteria that are presently used but placed in a multiple-species management context.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO ANGELA SANFILIPPO

The Massachusetts Fishermen's Partnership (MFP) established a standing committee to respond to questions from Congress on the Magnuson-Stevens Act Reauthorization. The MFP Magnuson Committee met to develop the following answers that reflect the MFP consensus.

Question 1. In the 1999 fishing season, the groundfish regulations changed five times. Changing the rules for a fishery five times in one year appears to be a de facto disregard of National Standard 8, which requires the consideration of socio-economic impacts of regulations on fishing communities.

A. Do you have any recommendations to increase the focus on such factors?

Answer. Systematic collection and use of socio-economic data should become an integral part of the management design process. This requires that necessary and

sufficient funding be appropriated to employ specialized and experienced personnel to collect scientifically valid and timely information from fishery users and manage a socio-economic database that is routinely updated. The best available socio-economic data from all sources should be collected in a comprehensive and demonstrably useful framework that can be applied to measure and understand social and economic impacts of proposed regulations on fishing-reliant populations. As such this information should be incorporated and considered in the Social Impact Assessment (SIA) for each proposed regulation, and Fishery Management Plan (FMP) framework adjustments should not be exempt from this requirement as presently occurs. A policy level position should be created in each region that is filled by a social science professional who is trained in socio-cultural analysis and who has the same influence in the agency as the senior natural science authority.

B. What can be done to inject more flexibility into the Act?
Answer.

- Flexibility can be injected into the Act by providing necessary and sufficient funding to institute community-based advisory panels of fishing stakeholders. Panels will be designed to be representative of all fishery stakeholders in the community, including those of lower social and economic levels and who may not be as vocal in their demands for consideration or as vigorous in their attendance of public regulatory hearings. These panels will regularly comment on and describe potential real-time impacts from proposed regulations, including those, which go through multiple changes within a calendar year. Panel input would be routinely collected and channeled through social science advisory committees as proactive information that would be available before regulatory options are finalized for review. It will also insure feedback on impact and adaptations to regulations as they arise from specific management actions in state and federal waters. The present system does not allow for timely feedback on socio-economic responses to regulations, with one assessment running into the other without being informed by what has previously occurred as communities try to adapt to regulatory change.
- Rebuilding fish stocks to their maximum levels in less than 10 years is usually not necessary biologically and causes inefficient and unjust displacement of fishermen and related businesses. Our fishermen realize that fish stocks must be rebuilt and socio-economic impacts need to be mitigated through various avenues to rebuild stocks within 10 years. But when a determination is made that fish stocks need to be rebuilt in less than 10 years, then a socio-economic cost/benefit analysis should be mandatory before the regulations go into effect.

Question 2. Please comment on whether you think that the Council decision-making process involves an adequate level of public participation and whether establishing standard operating procedures for its advisory committees would improve the Council's work.
Answer. Please see our answer to section 1B above for our proposal to improve the Council decision-making process.

A. Are you aware of any instances when the Council has not adequately considered an Advisory Committee recommendation? If so, please explain.
Answer.

- Some vital recommendations of the New England Fishery Management Council Scallop Advisory Committee and the Scallop Oversight Committee were removed from the public hearing document for Amendment 14 to the Scallop Fishery Management Plan.
- The Groundfish Advisory Committee recommended the use of the running clock as a strategy to reduce discards and fishing pressure. The recommendation was rejected.

Question 3. Do you support the Marine Fish Conservation Network recommendation that the Magnuson-Stevens Act should be amended to guarantee that more non-fishermen (specifically members of environmental organizations) are appointed to the regional fishery management councils?
Answer. No, there is already representation of the environmental community on the regional councils. For example, representatives of environmental organizations are members of the New England Fishery Management Council (NEFMC) and chair certain key NEFMC committees and advisory committees, including the Habitat Committee, Groundfish Oversight Committee, and Social Science Advisory Committee. Other NEFMC committee chairs were endorsed by environmental organizations including the chair of the Scallop Oversight Committee and the Research

Steering Committee. Some of the best conservationists on the NEFMC in recent years have included fishermen. The best way to ensure the long term sustainability of our fisheries will be to maximize fishermen's input and try to maintain as many conservation minded fishermen on the regional councils as possible. Since environmentalists already have access to council seats and process, there is no need to further guarantee in the statute the allocation of council seats to certain sectors.

Question 4. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

Answer. Magnuson-Stevens Act Reauthorization should extend the moratorium on ITQs. The MFP consensus calls for shifting fisheries management towards an ecosystem-based approach. An ecosystem-based management system will eventually rely on more effective management tools than quotas. Individual quotas (IQs) in our multispecies fisheries would be incompatible with our vision for fisheries management in New England.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO RUSSELL SHERMAN

Question 1. In the 1999 fishing season, the groundfish regulations changed five times. Changing the rules for a fishery five times in one year appears to be a de facto disregard of National Standard 8, which requires the consideration of socio-economic impacts of regulations on fishing communities.

A. Do you have any recommendations to increase the focus on such factors?

B. What can be done to inject more flexibility into the Act?

Answer. I agree that the ever-changing regulations are improper and violate the National Standards. Frequent rule changes disrupt the fishery and fishermen's lives, and guarantee that we will never know what aspects of the rules actually bring about improvements to fish stocks We can't make a business plan or plans for our future.

I think that the Councils should be limited to the degree of change permitted in the middle of a year. Very often, we spend time preparing management alternatives, only to be told that goals have changed without notice. Even in preparation for annual adjustments, the reports and analyses are made available only days before the meetings where annual adjustments are planned. We need to limit the Councils to at most one adjustment per year, with some flexibility for emergencies—but no longer major changes through the "Framework Process."

With regard to the issues of flexibility, managers should be permitted to look at total biomass, not just management on a species by species basis. Where a reduction is needed in one fishery, all other opportunity to target other species should not be lost where it will only provide a marginal reduction on the species of concern.

Managers should be allowed to extend rebuilding deadlines to allow for continued economic participation of fishermen and communities.

More reliance should be placed on real time data, through use of computerized logbooks and observer data. This would permit more flexible area closures and adjustment of other measures. High priority should be given to flexibility in allowing short-term openings of inshore areas closed for cod conservation, whenever cod stocks have migrated through, and opportunity exists to target other species.

Question 2. Please comment on whether you think that the Council decision-making process involves an adequate level of public participation and whether establishing standard operating procedures for its advisory committees would improve the Council's work.

A. Are you aware of any instances when the Council has not adequately considered an Advisory Committee recommendation? If so, please explain.

Answer. I do not think that the present Council structure in the Northeast permits adequate public comment. Recent pronouncements from the Council office limit the public's ability to participate by essentially mandating participation through industry spokespeople. Even the advisory groups are being run by non-fishermen, often lobbyists, who further limit opportunity for input. Much of this is due to the lengthy process requiring attendance at numerous meetings. As conservation turns to an allocation fight, marginal groups can not keep up, and find themselves frozen out.

With regard to the failure of the Council to follow industry advisors, the most glaring example are the inshore closures in the Gulf of Maine. The advisors stood firmly against these, as it was believed that these posed a significant threat to the inshore fleet. Subsequent to the development of the inshore closure alternatives and adoption by the council, the advisors were proven right by the NMFS report gen-

erated by Peter Fricke, and the figures produced by the New England Fishery Management Council showing that while offshore fleets maintained or increased landings, inshore vessels landings were reduced overall by about 68 percent. Attachments A and B * hereto.

As early as Amendment V, industry advisors recommended the Council take steps to prevent displacement of effort into inshore areas. Although the Groundfish Committee indicated this would not be allowed, the Council completely failed to take this industry concern into account, resulting in displacement of effort into inshore waters, and caused the Gulf of Maine cod stock to collapse.

Recently, NEFMC subcommittee and advisory committee meetings were scheduled in May, just when inshore fishing grounds opened for the first time after months. Many of us were required to choose between our first paycheck in months, and attending endless meetings to make sure lobbyists for other elements of the fleet didn't merely stab us in the back to get a bigger piece of the pie. We need to bring management back to a level where industry works together.

Question 3. Do you support the Marine Fish Conservation Network recommendation that the Magnuson-Stevens Act should be amended to guarantee that more non-fishermen (specifically members of environmental organizations) are appointed to the regional fishery management councils?

Answer. I do not think that we need more members of environmental organizations on the Councils. There is sufficient representation of "environmental" interests in the government science. The Council process lets industry decide how to take the medicine the government requires in the form of reductions in catch. Environmental organizations have little to offer to determine how a sectors gear should be modified or when areas need to be closed to protect individual stocks. The Council process supposedly exists to allow individuals affected by conservation guidelines or mandates to make adjustments to their activities, not to set conservation goals.

I am concerned that individuals are appointed to the Council with an "Environmental" agenda, such as elimination of commercial fishing, and are paid by their organizations dependent upon how they vote. This completely undermines confidence in a process which is supposed to maximize return from the resource. I do not believe that representatives of environmental organizations give any consideration to industry concerns. In general, I am opposed to any paid lobbyists sitting on the Councils.

Question 4. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

Answer. I oppose ITQ's and recommend that the ban on them be continued. ITQ's will permit a very few to profit at the expense of the owner operator fleet, which is the vital social fabric of the fishing ports of New England.

I have heard a lot of discussion attempting to compare the Northeast to the West coasts. The two fisheries can not be compared, because of the number of small owner-operators and the multispecies nature of our fishery. It would be impossible to set individual quotas in this region. The last few years have witnessed such a disruption in fishing patterns and disparity in landings between gear and regional sectors of the fleet, that fair allocation would be impossible.

The scenarios for allocating quota threaten to reward those who have historically had the greatest impact on the resource. Conversely, those who had spread their effort over a number of species now find themselves frozen out of fisheries that constituted smaller parts of their catch. Having lost those species, such as lobster for inshore groundfishermen, their allocation of groundfish will be substantially lower than their overall historical catch. The multispecies fishery is not easily adapted to ITQs unless they are given equally to each vessel.

I believe the easiest solution is to avoid ITQs altogether, as the only result will be disparity between the winners and losers, and ultimate concentration of title to the resource in a few large private entities.

Again, I thank you for the opportunity to comment on these important matters. Please feel free to call upon me should you have any additional questions or concerns.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO DR. PATRICK SULLIVAN

Question 1. Several of the witnesses testified that Maximum Sustainable Yield is an outdated concept.

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* Attachments have been retained in the Subcommittee files.

A. In the absence of Maximum Sustainable Yield, what would you advocate as a responsible benchmark to achieve sustainable fisheries?
Answer. The witness did not provide a response.

B. What further data would be required to quantify this benchmark?
Answer. The witness did not provide a response.

Question 2. It has been suggested that the regional councils should switch from single or multispecies Fishery Management Plans to Fishery Ecosystem Plans.

A. Please assess the amount of work this would create for the regional councils?
Answer. The witness did not provide a response.

B. Is there currently enough life history and environmental data to create such an ecosystem plan?
Answer. The witness did not provide a response.

Question 3. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.
Answer. The witness did not provide a response.

Question 4. Does the term "overfishing" need to be change? If so, please describe.
Answer. The witness did not provide a response.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO PETER WEISS

Question 1. The Marine Fish Conservation Network (Network) has recommended that language requiring the United States to implement the management and conservation measures adopted by the International Commission for the Conservation of Atlantic Tunas (ICCAT) be repealed. This would allow the United States to implement management and conservation measures that would be inconsistent with measures agreed to by the United States for fisheries managed under ICCAT. Do you support this recommendation? Please explain.

Answer. We are absolutely, totally opposed to the changes suggested by the Marine Fish Conservation Network to drop the statutory references in Magnuson and ATCA protecting all U.S. Highly Migratory fishermen against unilateral restrictions requiring higher conservation standards for only U.S. fishermen. The language prohibiting regulations that solely disadvantage U.S. fishermen in relation to our foreign counterparts simply recognizes that U.S. fishermen are not second class citizens of the world and are entitled to our historical share of international fish resources. The Magnuson Act recognizes that U.S. fishermen must be provided a reasonable opportunity to catch quotas agreed to by ICCAT and this is not some kind of luxury but rather a basic right inherent to all partners participating in management and conservation of our shared Highly Migratory resources.

The Marine Fish Network folks simply do not get it—in the long run, unilateral measures and efforts by the U.S. to conserve highly migratory fish cannot and will not work. For nearly every highly migratory fish under ICCAT, we catch an almost insignificant amount (i.e. <5%) of the species and are responsible for but a small fraction of fishing mortality on these species.

I emphatically remind the Staff that it was Senator Kerry who championed the cause of equal treatment for U.S. HMS fishermen during the 1990 Magnuson Act and ATCA amendments. I have attached his eloquent justifications at the time and note that they are even more true and necessary for the new Millennium.

Question 2. As a member of the Highly Migratory Species Advisory Panel to the Secretary, do you have any suggestions on how the process can be made more responsive to recommendations, especially consensus recommendations, of the Advisory Panels?

Answer. My suggestion is that serious consideration should be given to making consensus recommendations of the A.P. binding on NMFS and that a statutory time limit of 180 days for implementation of these regulations be imposed. At the same time, I think there needs to be more structure provided for the appointment process and balance on the A.P. The primary function of the A.P. is to provide advice on matters pertaining to regulating the fisheries.

I also suggest that changes be made to provide the A.P. a measure of independence from NMFS. Longer terms of appointment, mandating the election of non-NMFS Chairman, authorizing calling of meetings and establishment of agenda items would all contribute to a more effective and relevant A.P.

Question 3. Please state whether or not Congress should extend the moratorium on Individual Transferable Quotas and how such action would affect fisheries in New England.

Answer. Congress should not extend the moratorium on ITQ's and Congress should end this needless micromanagement of the fisheries. Today, fish managers across this country need to have and consider every possible tool to manage all of our challenging fisheries, especially those with unique characteristics. ITQ's can be utilized in a manner where the benefits extend beyond those originally possessing the allocation.

Attachment

International efforts to manage Highly Migratory Species are absolutely imperative. U.S. fishermen should not have to endure severe restrictions while other nations continue to harvest the very same stock of fish. These are international stocks and all nations must bear responsibility for conservation. We are trying to avoid a situation in which, once again, a U.S. industry is asked to adhere to greater standards than our competitors abroad, a consequence of which U.S. workers, fishermen and others who work as a result of the fishing industry, wind up out of jobs or being hurt in their income. That is obviously not fair, and it is important that we fight for those rights . . . . The United States ought to take the lead to establish strong international quotas that will promote recovery and conservation of stocks. Once agreement is reached by the international community, U.S. fishermen ought to be allowed a reasonable opportunity to fish for the [agreed upon] quota . . . . *(136 Cong. Rec. S14,963 (daily ed. Oct. 11, 1990) (statement of Sen. Kerry debating S. 1025, the Fishery Conservation Amendments of 1990)).*

[Regarding] Highly Migratory Species . . . U.S. fishermen are willing to do their fair share to rebuild these stocks. But it is Congress' intention that all nations that harvest these stocks participate and that our fishermen are not unduly burdened with the full responsibility for this effort. Therefore, this bill asks the Secretary [of Commerce] to negotiate a strong international quota and provide fishermen a reasonable opportunity to catch that quota. *(136 Cong. Rec. S17,469 (daily ed. Oct. 27, 1990) (statement of Sen. Kerry debating H.R. 2061, the Fishery Conservation Amendments of 1990)).*

[T]he [International] Commission [for the Conservation of Atlantic Tunas] adopted a two-stock hypothesis, using a line drawn at 45 degrees west longitude to divide Atlantic bluefin tuna into western and eastern stocks. Little conclusive data has been collected to support the two stock hypothesis . . . . I raise this issue because while western Atlantic harvests have been reduced by 65 percent, catches in the east are reported to have increased by 31 percent. If further investigation reveals that mixing rates between the two stocks are greater than current data indicate, then overfishing in the eastern Atlantic is having a greater impact on the western stock than is currently acknowledged. In order to rebuild the fishery in the western Atlantic, it would then become critical to reduce fishing effort in the eastern Atlantic. Additional reductions for the western Atlantic would be of questionable value from a conservation standpoint. *(139 Cong. Rec. S14,839 (daily ed. Nov. 2, 1993) (statement of Sen. Kerry introducing S. 1611, the Atlantic Tunas Convention Authorization Act of 1993)).*

Other countries' lack of compliance with ICCAT recommendations also may be linked to problems in the U.S. Bluefin Tuna Fisher. [H]arvests in the eastern fisheries have greatly exceeded the 15 percent allowance of bluefin tuna under 6.4 kilograms. In addition, the catch of bluefin tuna by fishing vessels of non-ICCAT member countries and the reflagging of vessels to avoid ICCAT restrictions may inhibit the stock's ability to recover. The result is that the effectiveness of U.S. conservation efforts is dissipated by the failure of other nations to take complementary action. [Thus], participation by all fishing parties in concerted action to implement and enforce management measures is long overdue. Such participation is essential if we are to have any hope of rebuilding these stocks and ensuring sustainable fisheries harvests. *(139 Cong. Rec. S14,839 (daily ed. Nov. 2, 1993) (statement of Sen. Kerry introducing S. 1611, the Atlantic Tunas Convention Authorization Act of 1993)).*

The Atlantic bluefin resource supports valuable commercial and recreational fisheries in the United States. A general national estimate is that the commercial industry generates $22 to $32 million in direct sales of bluefin tuna. Of course, this figure does not begin to take into consideration the supporting industry and businesses for which the bluefin tuna industry generates revenue. Nationally, there are approximately 11,600 permits issued to commercial vessels to fish for bluefin tuna,

of which over one third are held by vessels from my State of Massachusetts. Numerous families in small coastal communities from Maine to Louisiana depend upon this fishery for their livelihood—in commercial fisheries, charter boat operations, or in assorted supply, maintenance, and processing operations. *(139 Cong. Rec. S14,839 (daily ed. Nov. 2, 1993) (statement of Sen. Kerry introducing S. 1611, the Atlantic Tunas Convention Authorization Act of 1993)).*

We need better information to properly assess and manage Atlantic bluefin tuna and other highly migratory species. In addition, we must encourage other countries in the eastern and western Atlantic and the Mediterranean to do their fair share. The benefits of coordinated action and shared responsibility for these stocks will be enjoyed by all. *(139 Cong. Rec. S14,839 (daily ed. Nov. 2, 1993) (statement of Sen. Kerry introducing S. 1611, the Atlantic Tunas Convention Authorization Act of 1993)).*

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